

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,

Plaintiff,

v.

HARMAN INTERNATIONAL
INDUSTRIES, INCORPORATED,

Defendant.

Civil Action No.: 05-10990 DPW

MIT'S OPPOSITION TO HARMAN'S MOTION TO DISMISS

Plaintiff, Massachusetts Institute of Technology ("MIT") hereby opposes Harman's motion asking this Court to dismiss this patent infringement action in favor of a declaratory judgment case Harman secretly filed in Chicago during licensing discussions.¹

There is no reason for dismissal of this case. MIT has properly filed this affirmative patent infringement action here in Massachusetts. There is no dispute that this Court has personal and subject matter jurisdiction, nor that venue is properly in this jurisdiction.

Harman argues as though the mere fact that it beat MIT to the courthouse requires dismissal of this case. *In this district*, however,

in patent infringement cases, where 1) the patentee notifies an alleged infringer of suspected infringement, 2) good faith negotiations ensue and 3) the alleged infringer then files a declaratory judgment action in another forum, a subsequently-filed action by the patentee in the nature of patent infringement filed within a reasonable time after the first action is entitled to some deference and [] *the "first-filed rule" will not be dispositive.*

¹ Harman originally moved to dismiss on two grounds: that this Court lacked personal jurisdiction, and that this Court should dismiss in deference to Harman's earlier-filed case in Chicago. On June 30, 2005, Harman withdrew the portion based on its challenge to personal jurisdiction.

Kleinerman v. Luxtron Corp. & H.G. Ass'n., 107 F. Supp. 2d 122, 124-25 (D. Mass. 2000)

(emphasis added) (attached for the Court's convenience as Ex. 1 hereto).

More important than the relative filing date of the two actions are the following facts:

1) This case is properly here in this Court. This is an affirmative patent infringement case, and MIT has the statutory right to bring this action here. Harman concedes this Court has personal jurisdiction over it. Harman raises no objection to subject matter jurisdiction. Venue is also proper in this district -- MIT is located in this district, the witnesses are in this district, and Harman does significant business in this district;

2) The fact that Harman secretly filed a declaratory judgment action as a negotiation tactic in a race to the courthouse has no impact on this case. Harman filed its declaratory judgment complaint in Chicago *minutes after* its executives shook hands with MIT's licensing officer at MIT, agreeing to get back to MIT "within a week or two" concerning further licensing negotiations.² Courts regularly find that forum shopping misbehavior should not deprive the actual plaintiff the court of its choice.

Indeed, MIT has moved to dismiss the action in the Northern District of Illinois for lack of subject matter jurisdiction over this dispute, because the Chicago case was filed before there was an actual controversy and without Harman having any reasonable apprehension of imminent litigation; and

3) The Northern District of Illinois, if it does not dismiss, has been asked to transfer the case to the District of Massachusetts. Importantly, the Northern District of Illinois has no

² In fact, the certificate of service Harman filed in Chicago indicated that the case was filed during the licensing meeting. Harman now claims that this was an "unfortunate typo," believing that the fact that it filed its action minutes after the meeting, instead of during the meeting, somehow changes things. All that really matters is that Harman left MIT saying that the negotiations would continue, and saying nothing about bringing a lawsuit that morning.

relationship to any material issue in this case; Massachusetts is the only forum between the two in which any party, witness, or other discoverable evidence is located; and the balance of equities urges towards letting MIT conserve its scarce resources and litigate in its home forum. (Harman has no contacts with Illinois other than it is the location of its lead counsel, Kirkland & Ellis.) MIT's motion to dismiss or transfer the Illinois action to Boston is fully-briefed and is waiting for decision by Judge Holderman in the Northern District of Illinois.

This Court should simply deny Harman's motion. In the alternative, this Court should defer consideration of Harman's motion until after Judge Holderman in the Northern District of Illinois rules.

FACTUAL BACKGROUND

Between Illinois and Massachusetts, *every* factor bearing on the choice of forum points to Massachusetts:

1. The balance of convenience strongly favors Massachusetts. MIT is based in Massachusetts. Harman is based in California and Washington, D.C. *Neither* party is located in Illinois. *No* evidence germane to the issues of infringement, validity and enforceability of the patent-in-suit can be found in Illinois. *All* of the potential discovery sought from MIT (witnesses and documentary evidence) will be located in Massachusetts. Harman, on the other hand, has no evidence or witnesses in Illinois, with its evidence instead being variously located (it appears) in California, Michigan and Germany.

The *only* connections Harman can point to in Illinois are the presence of Harman's patent litigation counsel, Kirkland & Ellis LLP, and the fact that a third-party who helped MIT with its license negotiations lives in Illinois.

2. The forum-shopping exception to the first-filed rule favors litigation in Massachusetts. Harman filed its declaratory judgment action *during* good faith licensing negotiations with MIT, and for the sole purpose of litigating in a forum convenient only to Harman's counsel, but inconvenient to all parties and witnesses involved, and completely unrelated to the dispute at issue. When a declaratory plaintiff races to the courthouse under these circumstances, good cause exists for litigation in the second-filed jurisdiction.

3. Massachusetts is the best venue to handle this dispute. *This case* is, without question, appropriately filed in Boston. The fact that Harman has an earlier-filed case in Chicago cannot deprive this Court of jurisdiction. MIT's motion to dismiss Harman's Chicago action seeks dismissal of that case based on the absence of an "actual controversy," as required by the Declaratory Judgment Act, or alternatively, that the court decline jurisdiction, as is within its discretionary rights, because of the improper and unnecessary filing. Should MIT's motion prevail, there will be no "first-filed" Chicago case, and Massachusetts will be the only venue with a case pending.

The following are key, undisputed facts relevant to the pending motion:

1. Defendant MIT is a non-profit educational and research institution organized under the corporate laws of the Commonwealth of Massachusetts with a principal place of administration in Cambridge, Massachusetts. (See Declaration of John H. Turner, Jr. ("Turner Decl."), ¶3, attached as Ex. A to MIT's Motion to Dismiss Chicago Action, attached as Exhibit 2 hereto.)

2. MIT employs approximately 12,500 employees who work at MIT's facilities in Cambridge and Lexington, Massachusetts. Over 10,000 students currently attend MIT at its Cambridge, Massachusetts campus. All of MIT's senior management and executives work in MIT's facilities in Massachusetts. All licensing of MIT's patent rights is controlled and supervised by MIT's employees in Massachusetts. MIT's counsel is located in Boston. (Turner Decl., ¶4.)

3. As a non-profit educational organization, litigation expenses are a significant issue for MIT, and the burden of litigating in a foreign forum such as the Northern District of Illinois would be extremely onerous and costly for MIT. (Turner Decl., ¶5.)

4. Harman holds itself out as a leading international manufacturer, distributor, and retailer of consumer electronic products. Harman avers that it is a Delaware corporation with corporate headquarters in Washington D.C., and a principal place of business in Northridge,

California. (See Corrected Declaration of Robert P. Hart, attached as Ex. 4 to Harman's Motion to Dismiss ("Hart Decl"), ¶ 3.) Harman has at least one subsidiary incorporated and doing business in Massachusetts. (See Hart Decl., ¶ 7.)

5. This action involves Harman's automobile navigation system products, such as its "TrafficPro." In general, these are GPS devices that verbally provide directions to the driver of a car.

6. MIT is the exclusive owner of U.S. Patent No. 5,177,685, entitled "Automobile Navigation System Using Real Time Spoken Driving Instructions," which issued on January 5, 1993 (the "'685 patent"). The two inventors, James R. Davis and Christopher M. Schmandt, assigned all rights, title and interest in the patent to MIT. Mr. Schmandt currently resides in Massachusetts, and remains an employee of MIT. MIT believes Mr. Davis currently resides in Canada. (Turner Decl., ¶6.)

7. Beginning in 2003, Robert Schwartz, an independent contractor assisting MIT in licensing some of its technology, began discussions with Harman about licensing the '685 patent. (Turner Decl., ¶8.) In the course of that negotiation, Mr. Schwartz had meetings with Harman in Chicago in 2003, in California in 2005, and on the morning of March 14, 2005, at MIT in Massachusetts.

8. Particular focus is due on the March 14 meeting in Cambridge, where Harman executives and its inside and outside counsel met to negotiate with members of MIT's licensing group. At the close of that meeting, Harman executives shook hands with the MIT representatives present, and expressed that Harman would get back to MIT about discussing the potential for taking a license to MIT's '685 patent "within a week or two." (Turner Decl., ¶10.) There was no discussion of litigation at the meeting.

9. Apparently, however, immediately after telling MIT it wanted *to negotiate further*, Harman filed a declaratory judgment complaint in the United States District Court for the Northern District of Illinois, seeking a declaration of non-infringement, invalidity and unenforceability of the '685 patent. (Turner Decl., ¶11.)

10. After learning of Harman's suit in Illinois, on May 12, 2005, MIT filed this suit against Harman in the United States District Court for the District of Massachusetts. (Turner Decl., ¶12.) There is no dispute that the issues in the Massachusetts case and the Illinois case are identical.

11. On May 13, 2005, MIT moved to dismiss the case in the Northern District of Illinois, on the basis of lack of subject matter jurisdiction (because of the absence of an actual controversy, and Harman's filing during ongoing good faith licensing negotiations) and alternatively, to transfer the Chicago case to the District of Massachusetts for consolidation with the present affirmative infringement action under 28 U.S.C. § 1404(a). (See Ex. 2 hereto (MIT's Motion to Dismiss).) Harman filed its Opposition to MIT's Motion to Dismiss on June 10, 2005, and MIT filed a Reply brief on June 24, 2005. (See Exs. 3 (Harman's Opposition) and 4 (MIT's Reply) attached hereto.) This issue is now fully-briefed and Judge Holderman in the Northern District of Illinois has told the parties he will rule on the papers, without oral argument. (See Ex. 5 attached hereto (Order of Court).)

ARGUMENT

I. The First-to-File Rule Does Not Govern This Dispute.³

The fact that Harman raced to the courthouse and filed a declaratory judgment action in Chicago before MIT even threatened its affirmative patent infringement action here, is irrelevant to whether *this* Court has subject matter jurisdiction.

[I]n patent infringement cases, where 1) the patentee notifies an alleged infringer of suspected infringement, 2) good faith negotiations ensue and 3) the alleged infringer then files a declaratory judgment action in another forum, a subsequently-filed action by the patentee in the nature of patent infringement filed within a reasonable time after the first action is entitled to some deference and [] *the “first-filed rule” will not be dispositive.*

Kleinerman v. Luxtron Corp. & H.G. Ass’n, 107 F. Supp. 2d 122, 124-25 (D. Mass. 2000)

(emphasis added) (attached for the Court’s convenience as Ex. 1 hereto). Kleinerman is consistent with the Supreme Court’s counseling against rigid application of the preference for first-filed actions. See Kerotest Mfg. Co. v. C-O-TWO Fire Equip. Co., 342 U.S. 180, 183 (1952) (“[w]ise judicial administration, giving regard to conservation of judicial resources and comprehensive disposition of litigation, does not counsel rigid mechanical solution of such problems [with the Federal Declaratory Judgment Act].”). Even the cases Harman cites

³ As a preliminary matter, to conserve this Court’s resources, this Court may properly defer its decision until after Judge Holderman in the Northern District of Illinois rules on MIT’s motion. It is well-settled law that forum disputes based on the “first-filed” rule are best decided by the “first-filed” Court. See Boston & Maine Corp. et al. v. United Transp. Union et al., 110 F.R.D. 322, 330 (D. Mass. 1986). MIT and Harman have fully briefed MIT’s motion to dismiss the Chicago action, on the grounds that 1) the Northern District of Illinois lacks declaratory judgment jurisdiction over the case, 2) Harman’s filing of its suit during good faith licensing negotiations is bad-faith forum shopping, and 3) the balance of convenience clearly favors litigating this suit in Massachusetts, rather than Illinois. Judge Holderman has the “first-filed” venue issue before him, and has told the parties he will rule on the pleadings. (See Ex. 5 hereto.) This Court should deny Harman’s motion to dismiss without hesitation, but this Court might consider staying consideration of Harman’s Motion to Dismiss until after Judge Holderman rules, because Harman’s motion is based on nothing more than Harman’s claim of being “first-filed.”

recognize that exceptions to the first-to-file rule “are *not* rare, and are made when justice or expediency requires, as in any issue of choice of forum.” Biogen, Inc. v. Schering AG et al., 954 F. Supp. 391, 398 (D. Mass. 1996) (emphasis added).

The first-to-file rule may be a starting point, but it certainly is not dispositive.

A. Balance of Convenience⁴

This Court has recognized that an “exception to the first-filed rule occurs when the balance of convenience favors allowing the later-filed action to proceed.” Kleinerman, 107 F. Supp. 2d at 125.

A number of factors have developed to measure the convenience of litigating in a particular court including 1) the plaintiff’s choice of forum, 2) the convenience of the parties, 3) the convenience of the witnesses and location of documents, 4) any connection between the forum and the issues, 5) the law to be applied and 6) the state or public interest at stake.

Id. at 125.

There can be no question that the balance of convenience favors litigation of this patent infringement case in Massachusetts (where MIT, its information relevant to the claims in the case, and the potential witnesses and documents, are all located), as opposed to Illinois (where *no* discoverable information resides, no witnesses or documents are located, and no litigant resides).

1. Plaintiff’s Choice Of Forum

MIT’s preference, as the patent holder and plaintiff, is for Massachusetts. Harman’s preference, as the accused infringer, is more or less irrelevant, because even in the Chicago case, it is acting as “plaintiff” in name only, because it alleges only declaratory judgment claims –

⁴ MIT respectfully refers the Court to its Motion to Dismiss the Chicago Action (attached as Ex. 2 hereto) for a more complete discussion of why Judge Holderman in the Northern District of Illinois should transfer that case to be heard in Massachusetts, if the case is not dismissed in its entirety.

defenses to MIT's claim of patent infringement. Thus, MIT's choice of forum should prevail – not Harman's.

The question might be different if Harman had chosen its home forum, but it did not. Harman's choice was for a forum completely inconvenient for everyone other than Harman's litigation counsel. In such an instance, the chosen forum is entitled to even less deference. See Kleinerman, 107 F. Supp. 2d at 125 (“When a plaintiff chooses his home forum, the choice more likely represents considerations of convenience rather than vexation or harassment to the defendant, thus elevating the hurdle the defendant is required to clear to warrant transfer.”).

2. Convenience Of The Parties

This Court has also held that the parties' *relative* abilities to bear the costs of litigating in a particular forum are also relevant to this inquiry:

[W]eighing the inconveniences to each party requires more than calculating dollars and cents. There is a qualitative component to the balance of convenience which must focus on the comparative financial abilities of the parties and the cost of litigation should be borne by the party in the best position to absorb and spread it.

Kleinerman, 107 F. Supp. 2d at 125.

MIT is a resident of Massachusetts. Harman has no apparent contacts in Illinois, being a Delaware corporation headquartered in Washington D.C. with a principal place of business in California. Indeed, Illinois is *only* convenient to Harman's patent litigation counsel.

MIT is a non-profit educational institution, and is far less equipped to deal with the fiscal pressures of long-distance litigation. (See Turner Decl., ¶ 5.) Harman, on the other hand, is a publicly-traded corporation with net sales in 2004 of over \$2.7 Billion, and can offer no evidence that it would be any further inconvenienced if this case was litigated in Boston instead of Chicago. This is especially true where Harman has property interests in Massachusetts, contracts

with Massachusetts entities, has been sued in Massachusetts for patent infringement before without disputing the convenience of litigating there, has a wholly-owned subsidiary there, and recognizes revenue from sales of its infringing products to Massachusetts consumers. (See Exs. 6 (Docket Sheet) & 7 (Dunn & Bradstreet Report) attached hereto.)

3. Convenience Of The Witnesses And Location Of Documents

Essentially, Harman argues that the case should be litigated in a forum mutually *inconvenient* to both parties.

No discoverable information relevant to any issue to be tried (infringement, validity, and enforceability of MIT's patent) is located in Illinois. MIT's evidence is located in Massachusetts, including information bearing on invention, reduction to practice, and prosecution of MIT's patent, and evidence concerning the reasonable royalty to which MIT is entitled. Harman does not suggest there is any relevant evidence in Illinois, and has pointed only to witnesses in Michigan and Europe, saying it is just as easy for them to get to Chicago as to Boston.

4. Connection Between The Forum And The Issues

MIT is located in Massachusetts. The invention described in the '685 patent, and all prosecution efforts resulting in issuance of the '685 patent, took place in Massachusetts. Illinois has *no* connection with the issues that will be litigated – infringement, validity, and enforceability of the '685 patent.

5. Law To Be Applied

The issues to be litigated in this case are issues of substantive patent law, and thus Federal Circuit law prevails. This district is particularly well-versed to handle patent cases.

6. State Or Public Interest At Stake

Massachusetts has more at interest in trying this case than Illinois. This case impacts the rights of its resident – MIT. Neither party is located in Illinois, no witnesses are located there, and no property relevant to this dispute is located there.

When all of these factors are taken into account, the balance of convenience weighs heavily in favor of litigation in Massachusetts. There is nothing to point this case towards Illinois.

B. Forum Shopping

Courts routinely decline to exercise jurisdiction in cases in which the exercise of jurisdiction would provide incentives inconsistent with the policies of declaratory judgments – including forum shopping.

[A] litigant, whether a swift first or as a prompt retaliator, is open to a charge of forum shopping whenever he chooses a forum with slight connection to the factual circumstances surrounding his suit. Litigants should be encouraged to attempt to settle their differences without imposing undue expense and vexatious situations on the courts.

Rayco Mfg. Co. v. Chicopee Mfg. Corp., 148 F. Supp. 588, 592-93 (S.D.N.Y. 1957); see also Kleinerman, 107 F. Supp. 2d at 124-25.

This rule is in complete accord with the cases Harman cites. See Biogen, 954 F. Supp. at 398-99 (finding it “appropriate to dismiss the case in favor of a forum more convenient to the patentee, which had been lulled into deferring its possible suit based on [declaratory judgment plaintiff’s] representations regarding its interest in negotiating rather than litigating.”); The Holmes Group, Inc. v. Hamilton Beach/Proctor Silex, Inc., 249 F. Supp. 2d 12, 16 (D. Mass. 2002) (“[w]here, for example, a plaintiff [] misleads the defendant into foregoing litigation in order to negotiate a settlement and then files suit ..., the first-filed suit is clearly motivated by

the plaintiff's desire to secure the best forum and deference to a later-filed action may be appropriate.").

Litigating this case in Chicago would award Harman for its race to the courthouse, and punish MIT for attempting in good faith to resolve its dispute with Harman. The first-filed rule should not prevail in this case.

C. Lack of Jurisdiction in the Northern District of Illinois

It is well-settled law in the Northern District of Illinois that "[w]hen parties are still engaged in licensing negotiations as of the filing date of an action for declaratory judgment, there can be no actual controversy." Livorsi Marine, Inc. v. Nordskog Pub'g, Inc., 268 F. Supp. 2d 994, 998 (N.D. Ill. 2003) (finding lack of subject matter jurisdiction when licensing negotiations had not yet broken down at the time the declaratory judgment complaint was filed); see also Infosys Inc. v. Billingnetwork.com, Inc., 2003 WL 22012687, at *6 (N.D. Ill. Aug. 27, 2003) ("[I]t is black letter law that merely offering a license does not create a reasonable apprehension. ... Threats of litigation within the context of license negotiations also do not create a reasonable apprehension.") (attached hereto as Ex. 8).

In order for jurisdiction to be properly asserted in the Northern District of Illinois under the Declaratory Judgment Act, there must have been an "actual controversy" in existence at the time of filing of a declaratory judgment complaint. See 28 U.S.C. § 2201. In the case of declaratory complaints alleging non-infringement and invalidity of patents, in order for an "actual controversy" to exist, the declaratory plaintiff must show by a preponderance of the evidence that, at the time it filed its complaint, it had a "reasonable apprehension" of "imminent" litigation at the time it filed its complaint. See Shell Oil Co. v. Amoco Corp., 970 F.2d 885, 887-88 (Fed. Cir. 1992) (affirming district court's dismissal of declaratory judgment action where no

actual controversy was proven); Teva Pharm. USA, Inc. v. Pfizer, Inc., 395 F.3d 1324, 1333 (Fed. Cir. 2005) (internal citations omitted) (affirming district court's finding that plaintiff failed to demonstrate reasonable apprehension of imminent suit).

Harman's conduct is squarely within the realm of conduct intended to be prevented by the "actual controversy" requirement. Going into -- and coming out of -- the Cambridge meeting, licensing negotiations had not broken down. Harman executives had promised to follow up with MIT on that day's licensing discussions in the next few weeks.

When Harman filed its complaint, Harman had no reasonable apprehension of suit -- it knew license negotiations were ongoing. No actual controversy existed to allow the Northern District of Illinois to exercise declaratory judgment jurisdiction over Harman's case.

CONCLUSION

For all of these reasons, Harman's Motion to Dismiss should be denied, or in the alternative, this Court should stay decision of Harman's Motion until after the Northern District of Illinois rules on MIT's Motion to Dismiss or Transfer.

Respectfully Submitted,

Massachusetts Institute of Technology,

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July 15, 2005



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United States District Court,
D. Massachusetts.
Marcos. Y. KLEINERMAN, Plaintiff,
v.
LUXTRON CORP. and H.G. Associates,
Defendants.
No. Civ.A. 99-40157-NMG.

Aug. 2, 2000.

Patent licensor sued licensee in state court for breach. Defendant removed action to federal court. On plaintiff's motion to remand, and defendant's motion to dismiss or transfer, the District Court, [Gorton, J.](#), held that: (1) resolution of plaintiff's claim necessarily required determination of whether patents were being infringed, and thus district court had federal question jurisdiction, but (2) transfer of case to California, where defendant's suit seeking declaration of non-infringement was pending, was not warranted.

Motions denied.

West Headnotes

[1] Federal Courts **241**[170Bk241](#) [Most Cited Cases](#)

Although federal court's jurisdiction is ordinarily established by plaintiff's well-pled complaint, court will not permit plaintiff to use artful pleading to close off defendant's right to federal forum.

[2] Federal Courts **210**[170Bk210](#) [Most Cited Cases](#)

Resolution of patent licensor's state court suit for breach necessarily required determination of whether licensee was breaching patents, and thus district court had federal question jurisdiction.

[3] Courts **493(1)**[106k493\(1\)](#) [Most Cited Cases](#)**[3] Federal Courts** **1145**[170Bk1145](#) [Most Cited Cases](#)

Where overlap between two suits is nearly complete, second court will defer to court that first had jurisdiction unless balance of conveniences favors second action or some other special circumstance warrants giving priority to second action.

[4] Courts **493(1)**[106k493\(1\)](#) [Most Cited Cases](#)**[4] Federal Courts** **1145**[170Bk1145](#) [Most Cited Cases](#)

In patent infringement case, where (1) patentee notifies alleged infringer of suspected infringement, (2) good faith negotiations ensue and (3) alleged infringer then files declaratory judgment action in another forum, subsequently-filed action by patentee in nature of patent infringement filed within reasonable time after first action is entitled to some deference, and "first-filed rule" is not dispositive.

[5] Federal Courts **110**[170Bk110](#) [Most Cited Cases](#)

Balance of conveniences did not warrant transfer of patent infringement suit from plaintiff's home of Massachusetts to defendant's home of California, where defendant's suit for declaration of non-infringement was already pending; plaintiff's choice of forum was entitled to deference, and defendant was better able to afford costs of litigating out of state. [28 U.S.C.A. § 1404\(a\)](#).

***122** [John J. Geary](#), Geary & Tucker, Kingston, MA, for plaintiff.

[Michael B. Keating](#), [Evan Georgopoulos](#), Foley, Hoag & Eliot, Boston, MA, for defendant.

MEMORANDUM AND ORDER[GORTON](#), District Judge.

The plaintiff, Marcos Kleinerman ("Kleinerman"), filed the instant lawsuit in Massachusetts Superior Court alleging that the defendant, Luxtron Corp. ("Luxtron"), breached a license agreement that allowed Luxtron to use two patents registered to Kleinerman. Luxtron removed the case to this Court, citing patent infringement as grounds for federal question subject matter jurisdiction under [28 U.S.C. § 1331](#). Pending before the Court is the motion of the defendant to stay, dismiss or transfer this case due to the existence of a ***123** similar case in the Northern District of California (Docket No. 6) and the motion of the plaintiff to remand to state court (Docket No. 10).

I. Background

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In 1992, Kleinerman, the owner of two patents in the field of fiber optic sensors, accused Luxtron of infringing those patents. The parties subsequently entered into a license agreement wherein Kleinerman granted to Luxtron and its customers a license to use, make or sell products that incorporated the technology of the two patents in consideration for royalty payments based upon Luxtron's sales volume, including certain minimums ("the License").

In the instant suit, Kleinerman alleges that Luxtron did not report all sales of products using the patented technology as required by the license agreement, thereby depriving him of royalty payments. The parties attempted to settle the dispute for over eight months during which time Kleinerman occasionally threatened to sue Luxtron. Ultimately, Kleinerman wrote a letter to Luxtron on July 30, 1999 stating that negotiations were "at an impasse." Unbeknownst to him, Luxtron had filed suit the day before in the Northern District of California ("the California suit") seeking, *inter alia*, a declaratory judgment that it did not breach the License nor infringe Kleinerman's patents.

Two weeks later, Kleinerman filed the instant lawsuit in Massachusetts Superior Court ("the Massachusetts suit"), alleging breach of contract and other state law claims. Luxtron removed the case to this Court, asserting that Kleinerman's claims were actually based upon patent infringement. Kleinerman filed a motion to remand the Massachusetts suit to state court and Luxtron filed a motion to stay, dismiss or transfer this case to a California federal court based upon the prior filing of the California suit.

II. Motion to Remand

Kleinerman argues in his motion to remand that this Court does not have subject matter jurisdiction over the Massachusetts suit because in it he alleges only state law claims arising out of the alleged breach of the License. Luxtron responds that the Massachusetts suit involves substantial questions of federal law, namely alleged patent infringement, and that Kleinerman cannot avoid subject matter jurisdiction by purposefully omitting such a claim from his complaint.

[1] Ordinarily, jurisdiction is established by the plaintiff's well-pled complaint. Franchise Tax Bd. v. Construction Laborers Vacation Trust, 463 U.S. 1, 10, 103 S.Ct. 2841, 77 L.Ed.2d 420 (1983). The Supreme Court has, however, supported the

statement of one commentator that courts will not permit plaintiffs to use artful pleading to close off a defendant's right to a federal forum. Federated Dep't Stores, Inc. v. Moitie, 452 U.S. 394, 397 n. 2, 101 S.Ct. 2424, 69 L.Ed.2d 103 (1981) (citations omitted). The First Circuit has also noted that:

The [artful pleading] doctrine empowers courts to look beneath the face of the complaint to divine the underlying nature of a claim, to determine whether the plaintiff has sought to defeat removal by asserting a federal claim under state-law colors, and to act accordingly. In other words, a plaintiff may not, by the expedient of artful pleading, defeat a defendant's legitimate right to a federal forum. If the claim appears to be federal in nature--that is, if it meets the applicable test for one that arises under federal law--then the federal court must recharacterize the complaint to reflect that reality and affirm the removal despite the plaintiff's professed intent to pursue only state-law claims.

BIW Deceived v. Local S6, Ind. Union of Marine Shipbuilding Workers of Amer. IAMAW District Lodge 4, 132 F.3d 824, 831 (1st Cir.1997). Thus, if the Massachusetts suit involves the issue of patent infringement,*124 Kleinerman cannot avoid a federal forum just by omitting such a claim in his complaint.

[2] While the substance of the Massachusetts suit, according to Kleinerman, is whether Luxtron violated the License, in order to decide if there was a breach, one must determine whether Luxtron infringed Kleinerman's patents. The License permitted Luxtron to make and sell products incorporating the technology of the patents and required it to pay royalties to Kleinerman for such use.

If, as Kleinerman alleges, Luxtron used the patented technology but failed to pay royalties therefor, it violated the License. To determine if that happened, the finder of fact must consider whether the unreported products infringed Kleinerman's patents. In an analogous case, the Seventh Circuit Court of Appeals found that the determination of whether a particular product is covered by a patent license agreement requires deciding whether the product infringed the licensed patent. U.S. Valves, Inc. v. Dray, 190 F.3d 811, 814 (7th Cir.1999). See also Scherbatskoy v. Halliburton Co., 125 F.3d 288, 291 (5th Cir.1997). Thus, an analysis of patent infringement is necessary and subject matter jurisdiction lies in a United States District Court.

III. Motion to Stay, Dismiss or Transfer

Luxtron filed a motion to stay or dismiss the

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Massachusetts suit in light of the pending, similar California suit or, in the alternative, to transfer the Massachusetts suit to California for consolidation. Kleinerman opposes all three requests. Since Luxtron filed that motion, United States District Judge Ronald M. Whyte of the Northern District of California has denied Kleinerman's motion to dismiss the California suit based upon the existence of the Massachusetts suit.

[3] "Where the overlap between the two suits is nearly complete, the usual practice is for the court that first had jurisdiction to resolve the issues and the other court to defer." TPM Holdings, Inc. v. Intra-Gold Industries, Inc., 91 F.3d 1, 4 (1st Cir.1996). The preference for the first-filed action to proceed is, however, not an inviolable rule of law. In some cases, a showing of a balance of convenience in favor of the second action or special circumstances giving priority to the second action is warranted. SW Indus., Inc. v. Aetna Cas. & Sur. Co., 653 F.Supp. 631, 634 (D.R.I.1987) (collecting cases).

A. Special Circumstances

A court may allow a later-filed case to proceed under certain special circumstances. One such circumstance is if the first-filed action was the result of a race to the courthouse. Cianbro Corp. v. Curran-Lavoie, Inc., 814 F.2d 7, 11 (1st Cir.1987); Davox Corp. v. Digital Sys. Int'l, Inc., 846 F.Supp. 144, 147 (D.Mass.1993). Here, Luxtron cannot be accused of racing to the courthouse because it negotiated in good faith with Kleinerman for over eight months before filing for declaratory judgment in California. But Luxtron did pounce preemptively just before Kleinerman notified it of the perceived "impasse" and as soon as Luxtron realized that litigation was inevitable.

[4] In the context of patent infringement cases, a patentee is required to notify an alleged infringer by means of a "cease and desist letter." Such correspondence puts the alleged infringer on notice of potential legal action. More often than not this leads to the filing of an action for declaratory judgment in a foreign locale to the detriment of the patentee. This Court is persuaded that in patent infringement cases, where 1) the patentee notifies an alleged infringer of suspected infringement, 2) good faith negotiations ensue and 3) the alleged infringer then files a declaratory judgment action in another forum, a subsequently-filed action by the patentee in the nature of patent infringement filed within a reasonable time after the first *125 action is entitled

to some deference and that the "first-filed rule" will not be dispositive.

B. Balance of Convenience

[5] Another exception to the first-filed rule occurs when the balance of convenience favors allowing the later-filed action to proceed. SW Indus., Inc., 653 F.Supp. at 634. The party seeking to demonstrate that one forum is more convenient than another, here Luxtron, must show that the plaintiff's choice of forum is substantially more inconvenient than the alternative proposed by it. Anderson v. Century Products Co., 943 F.Supp. 137, 148 (D.N.H.1996).

A number of factors have developed to measure the convenience of litigating in a particular court including 1) the plaintiff's choice of forum, 2) the convenience of the parties, 3) the convenience of witnesses and location of documents, 4) any connection between the forum and the issues, 5) the law to be applied and 6) the state or public interest at stake. SW Indus., Inc., 653 F.Supp. at 637-39.

At the outset, there is a presumption in favor of Kleinerman's chosen forum of Massachusetts. Nowak v. Tak How Investments, Ltd., 94 F.3d 708, 719 (1st Cir.1996). That presumption is particularly strong here because the jurisdiction he chose is his home forum. Piper Aircraft Co. v. Reyno, 454 U.S. 235, 255, 102 S.Ct. 252, 70 L.Ed.2d 419 (1981). When a plaintiff chooses his home forum, the choice more likely represents considerations of convenience rather than vexation or harassment to the defendant, thus elevating the hurdle the defendant is required to clear to warrant transfer. *Id.*

When considering a motion to transfer, 28 U.S.C. § 1404(a) directs the Court first to consider the convenience of the parties. At best, that factor here is neutral. Naturally, it would be inconvenient for Luxtron to litigate this case in Massachusetts due to the business disruption caused by having to produce its employees in Massachusetts rather than in their home state of California. For Kleinerman to litigate in California would be at least as onerous because he would have to bear the financial burden of hiring California counsel and transporting himself and his witnesses there. Because there is a presumption in favor of plaintiff's choice, transfer is not appropriate where its effect is merely to shift the inconvenience from one party to the other. Trans National Travel, Inc. d/b/a TNT Vacations v. Sun Pacific Int'l, Inc., 10 F.Supp.2d 79, 81 (D.Mass.1998); Anderson, 943 F.Supp. at 148; Decker Coal Co. v. Commonwealth

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Edison Co., 805 F.2d 834, 843 (9th Cir.1986).

Moreover, weighing the inconveniences to each party requires more than calculating dollars and cents. There is a qualitative component to the balance of convenience which must focus on the comparative financial abilities of the parties and the cost of litigation should be borne by the party in the best position to absorb and spread it. Anderson v. Century Products Co., 943 F.Supp. 137, 148 (D.N.H.1996). Clearly, Luxtron is that party here.

The expense of prosecuting and defending lawsuits, both meritorious and non-meritorious, is an inevitable cost of doing business. If the Court were to transfer this case to California, the costs of litigation may become prohibitive to Kleinerman, thereby denying him his right to pursue a judicial remedy. Even if it were to cost Luxtron more to defend this suit in Massachusetts than it would cost Kleinerman to defend in California, the relative financial strengths of the parties instructs against transfer.

Section 1404(a) of Title 28 also requires the court to consider the convenience of witnesses, with a preference of live testimony over testimony by deposition. Anderson, 943 F.Supp. at 149. If, however, a court order or the persuasion of an employer who is a party to the action can secure the appearance of witnesses regardless *126 of the location of the forum, that factor becomes less important. *Id.* As the employer of several key witnesses in this case, Luxtron can assuredly secure the appearance in Massachusetts of those witnesses required to testify. On the other hand, Kleinerman may not so easily assure the presence of some of his local witnesses in California.

One factor, judicial economy, apparently weighs in favor of a transfer. It clearly would be more efficient to try all related issues in a single action in either California or Massachusetts. That principle is particularly germane to a patent case. *See, e.g., Smiths Industries Medical Systems, Inc. v. Ballard Medical Products, Inc.*, 728 F.Supp. 6, 7 (D.D.C.1989) ("Piecemeal litigation in the complex and technical area of patent and trademark law is especially undesirable."). Consequently, the ability to assert cross-claims can be relevant in applying the Section 1404(a) factors. *See Piper Aircraft Co. v. Reyno*, 454 U.S. 235, 102 S.Ct. 252, 70 L.Ed.2d 419 (1981). Nevertheless, Kleinerman as the patentee appears determined to proceed against Luxtron in this district. Because the plaintiff's choice of forum is entitled to substantial weight, *see Nowak*, 94 F.3d at

719, the Court concludes that judicial economy in this case is not paramount and does not eclipse that choice.

Ultimately, the witnesses, documents and other sources of proof of each party are located in their respective home districts. Each party will incur a correspondingly greater burden if required to litigate on the coast opposite to his/its domicile. Federal law applies in this case and both California and Massachusetts have a similar and corresponding interest in protecting their citizens from the conduct which gives rise to this litigation.

Based upon all of those factors, this Court concludes that by allowing defendant's motion to transfer it would merely serve to shift the burden rather than to eliminate it. Luxtron has not persuaded the Court that the plaintiff's choice of forum is substantially more inconvenient than the alternative it proposes. Therefore, this Court finds the plaintiff's choice of forum under these circumstances is controlling and defendant's motion to stay, dismiss or transfer will be denied.

ORDER

For the reasons set forth in the Memorandum above:

1. the motion of the defendant to stay, dismiss or transfer (Docket No. 6) is DENIED, and
2. the motion of the plaintiff to remand (Docket No. 10) is DENIED.

So ordered.

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**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS**

HARMAN INTERNATIONAL INDUSTRIES,
INCORPORATED,

Plaintiff,

v.

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,

Defendant.

Case No. 1:05 CV 1481

Judge Holderman

Magistrate Judge Schenkier

**DEFENDANT MASSACHUSETTS INSTITUTE OF TECHNOLOGY'S
MOTION TO DISMISS, OR IN THE ALTERNATIVE TRANSFER,
PLAINTIFF HARMAN INTERNATIONAL INDUSTRIES' COMPLAINT**

Defendant Massachusetts Institute of Technology ("MIT"), by and through its attorneys and pursuant to Fed. R. Civ. P. 12(b) moves to dismiss plaintiff Harman International Industries, Inc.'s ("Harman's") Declaratory Judgment Complaint, for lack of subject matter jurisdiction and improper venue, or in the alternative, moves to transfer this matter to the District of Massachusetts for consolidation with MIT's pending suit there. In support of its motion, MIT states as follows:

1. The Court lacks subject matter jurisdiction because at the time Harman filed its complaint, no actual controversy existed sufficient to support declaratory judgment jurisdiction. *See Holley Perf. Prods., Inc. v. Barry Grant, Inc.*, 2004 WL 3119017, at *8 (N.D. Ill. Dec. 20, 2004) (dismissing case for lack of subject matter jurisdiction); *Infosys Inc. v. Billingnetwork.com, Inc.*, 2003 WL 22012687, at *5 (N.D. Ill. Aug 27, 2003) (same).

2. Even if the Court finds that an actual controversy exists, dismissal is proper where, as here, the declaratory judgment is nothing more than a preemptive strike to secure a

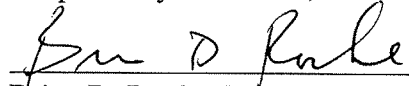
favorable forum. *See e.g., Trost v. Bauer & Azuradisc, Inc.*, 2001 WL 845477, at *5 (N.D. Ill. July 24, 2001) (refusing to exercise jurisdiction despite presence of actual controversy where “Plaintiffs raced to the courthouse to Defendants’ detriment”).

3. Finally, even if there were no jurisdictional problem, the proper venue in which this case should be tried is the District of Massachusetts, where an affirmative action on the identical issues raised by Harman’s complaint is now pending.

WHEREFORE, for these reasons and the reasons set forth in the accompanying Memorandum In Support Of Defendant Massachusetts Institute Of Technology’s Motion To Dismiss, Or In The Alternative, Transfer, Plaintiff Harman International Industries’ Complaint, MIT respectfully requests that the Court dismiss Harman’s complaint in its entirety, or in the alternative, transfer the action to the District of Massachusetts for consolidation with MIT’s pending suit against Harman, and award MIT such further relief as the Court deems just and proper.

May 13, 2005

Respectfully submitted,



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In fact, *neither* party is located in this district. No evidence germane to the issues of infringement, validity and enforceability of the patent-in-suit can be found in Illinois. All potential discovery sought from MIT (witnesses and documentary evidence) will be located in Massachusetts. Similarly, Harman has no evidence or witnesses in this jurisdiction, with its evidence instead being variously located (it appears) in California, Michigan and Germany. The only reason this case is in this district is that Harman's patent litigation counsel, Kirkland & Ellis LLP, is here. The only connection MIT has to this district related to this case is that a third-party, who helped MIT with its license negotiations, lives in Illinois.

This case should be tried in Massachusetts for at least three reasons:

First, this Court lacks subject matter jurisdiction over Harman's Declaratory Judgment complaint, because, in this district, the case law is clear: "When parties are still engaged in licensing negotiations as of the filing date of an action for declaratory judgment, there can be no actual controversy." Livorsi Marine, Inc. v. Nordskog Pub'g, Inc., 268 F. Supp. 2d 994, 998 (N.D. Ill. 2003) (finding lack of subject matter jurisdiction when licensing negotiations had not yet broken down at the time the declaratory judgment complaint was filed).

Second, even if the Court were to find that an actual controversy did exist, and it could exercise jurisdiction, this is precisely the type of case in which courts in this district routinely decline jurisdiction – where the declaratory judgment action is nothing more than a pre-emptive strike to secure a favorable forum – put simply, forum shopping.

Finally, even if there were no jurisdictional problem, this is the wrong place to try this case. The proper venue is the District of Massachusetts, where an affirmative patent infringement action on the identical issues raised by Harman's complaint is now pending.

Transfer of this case to the District of Massachusetts pursuant to 28 U.S.C. § 1404(a) is proper here.

FACTUAL BACKGROUND

Defendant MIT is a non-profit educational and research institution organized under the corporate laws of the Commonwealth of Massachusetts with a principal place of administration in Cambridge, Massachusetts. (See Declaration of John H. Turner, Jr. (“Turner Decl.”), ¶3, attached as Ex. A.)

MIT employs approximately 12,500 employees who work at MIT’s facilities in Cambridge and Lexington, Massachusetts. Over 10,000 students currently attend MIT at its Cambridge, Massachusetts campus. All of MIT’s senior management and executives work in MIT’s facilities in Massachusetts. All licensing of MIT’s patent rights is controlled and supervised by MIT’s employees in Massachusetts. MIT’s counsel is located in Boston. (Turner Decl., ¶4.)

As a non-profit educational organization, litigation expenses are a significant issue for MIT, and the burden of litigating in a foreign forum such as the Northern District of Illinois would be extremely onerous and costly for MIT. (Turner Decl., ¶5.)

MIT is the exclusive owner of U.S. Patent No. 5,177,685, entitled “Automobile Navigation System Using Real Time Spoken Driving Instructions,” which issued on January 5, 1993 (the “‘685 patent”). The two inventors, James R. Davis and Christopher M. Schmandt, assigned all rights, title and interest in the patent to MIT. Mr. Schmandt currently resides in Massachusetts, and (on information and belief) Mr. Davis currently resides in Canada. (Turner Decl., ¶6.)

Harman holds itself out as a leading international manufacturer, distributor, and retailer of consumer electronic products. Its suite of products includes those involved in this litigation: automobile navigation system products such as its "TrafficPro." Harman avers that it is a Delaware corporation with corporate headquarters in Washington D.C., and a principal place of business in Northridge, California. (See Complaint, Docket Entry No. 1.) Harman has at least two subsidiaries and/or divisions in Massachusetts. (See Dunn & Bradstreet Report, attached as Ex. B.)

Beginning in 2003, Robert Swartz, an independent contractor assisting MIT in licensing some of its technology, began discussions with Harman about licensing the '685 patent. (Turner Decl., ¶8.) In the course of that negotiation, Mr. Schwartz had meetings with Harman in Chicago in 2003, in California in 2005, and on the morning of March 14, 2005, at MIT in Massachusetts.

Particular focus is due on the March 14 meeting in Cambridge. For that meeting, Harman executives and its inside and outside counsel traveled to Cambridge, to negotiate with members of MIT's licensing group. The purpose of this meeting was to continue the ongoing license negotiations. At no time during the meeting did MIT threaten to file suit against Harman. At the close of that meeting, Harman executives shook hands with the MIT representatives present, and expressed that Harman would get back to MIT about discussing the potential for taking a license to MIT's '685 patent "within a week or two." (Turner Decl., ¶10.)

Apparently, however, *at the same time they were making this promise to get back to negotiate*, Harman's executives knew that the company had filed the current declaratory judgment action apparently as they walked into the meeting. (Turner Decl., ¶11.) No one from

Harman mentioned the litigation. No one from MIT had ever threatened litigation, or expressed to Harman that MIT was planning to sue Harman, *at any time during the approximately two years of license negotiations*. (Turner Decl., ¶9, 10.)

On May 12, 2005, MIT filed suit against Harman in the United States District Court for the District of Massachusetts, alleging that certain Harman products infringe the '685 patent. (Turner Decl., ¶12.)

ARGUMENT

I. This Court Lacks Subject Matter Jurisdiction In This Case.

The Declaratory Judgment Act, 28 U.S.C. § 2201 states that

[i]n a case of actual controversy within its jurisdiction, ... any court of the United States, upon the filing of an appropriate pleading, may declare the rights and other legal relations of any interested party seeking such declaration, whether or not further relief is or could be sought.

28 U.S.C. § 2201 (emphasis added). This enabling statute requires an “actual controversy” in order for a court to entertain declaratory judgment jurisdiction.

A. No Actual Controversy Existed At The Time Harman Filed Its Complaint.

In the case of a declaratory judgment action asserting the non-infringement and invalidity of a patent, as Harman asserts here, to establish an “actual controversy,” a two-pronged test is applied:

(1) there must be an explicit threat or action by the patentee, which creates a *reasonable apprehension* on the part of the declaratory judgment plaintiff that it will face an infringement suit, and (2) plaintiff must actually have either produced the device or have prepared to produce the device.

Infosys Inc. v. Billingnetwork.com, Inc., 2003 WL 22012687, at *5 (N.D. Ill. Aug. 27, 2003)

(dismissing case for lack of subject matter jurisdiction) (emphasis added) (attached as Ex. C).

(There apparently is no question that Harman has produced at least one device which MIT believes is covered by the terms of the '685 patent.)

Regarding the first prong of the test, the Court is to make an *objective* assessment of whether Harman can show by a *preponderance of the evidence* that it had a *reasonable apprehension when it filed its complaint*, that it was going to be sued. See Shell Oil Co. v. Amoco Corp., 970 F.2d 885, 887-88 (Fed. Cir. 1992) (affirming district court's dismissal of declaratory judgment action where no actual controversy was proven); Holley Perf. Prods., Inc. v. Barry Grant, Inc., 2004 WL 3119017, at *2 (N.D. Ill. Dec. 20, 2004) ("Reasonable apprehension must exist at the time suit is filed.") (attached as Ex. D).

"[I]t is black letter law that merely offering a license does not create a reasonable apprehension. ... Threats of litigation within the context of license negotiations also do not create a reasonable apprehension." Infosys, 2003 WL 22012687, at *6 (internal citations omitted) (emphasis added). "When there are proposed or ongoing license negotiations, a litigation controversy normally does not arise until the negotiations have broken down ... The 'reasonable apprehension of suit' test requires more than the nervous state of mind of a possible infringer; it requires that the objective circumstances support such an apprehension." Phillips Plastics Corp. v. Kato Hatsujou Kabushiki Kaisha, 57 F.3d 1051, 1053-54 (Fed. Cir. 1995).

Here, Harman falls literally within the scope of the Phillips and Infosys cases. On the very day Harman's complaint was filed, Harman executives and Harman's counsel were visiting MIT to further the ongoing licensing negotiations between the parties, negotiations that had been going on for over a year without a single threat of litigation being made. Going into -- and coming out of -- the Cambridge meeting, licensing negotiations had not broken down. In fact,

Harman executives promised to follow up with MIT on that day's licensing discussions in the next few weeks.

Moreover, Harman's decision to file suit was not ever conveyed to MIT during any of its negotiations with Harman. Indeed, Harman filed this suit before the meeting had ended, yet never mentioned the suit to MIT at the meeting. (See Docket Entry No. 8, Return of Service on Summons, attached for the Court's convenience as Ex. E (showing receipt of Summons by process server at 9:57 a.m. on March 14, 2005).)¹ At the time of Harman's filing of its complaint, it had no reasonable apprehension of suit – it knew license negotiations were ongoing, as it was attending meetings in furtherance of those negotiations.²

By way of example, in a case similar to the current case, Holley Performance Products, Inc. v. Barry Grant, Inc., this Court granted defendant's motion to dismiss. 2004 WL 3119017, at *8 (N.D. Ill. Dec. 20, 2004) (attached as Ex. D). In Holley Performance, this Court held that plaintiff had not adequately established "the existence of a real and immediate controversy requiring immediate judicial action," based on facts including correspondence from defendant to

¹ Importantly, Harman must prove not only that it had a "reasonable apprehension" that MIT would sue it for patent infringement – the litigation must have been imminent:

[i]n order for this case to be one fit for judicial review, [plaintiff] must be able to demonstrate that it has a reasonable apprehension of *imminent* suit. ... This requirement of imminence reflects the Article III mandate that the injury in fact be 'concrete' and 'actual or imminent, not conjectural or hypothetical.'

Teva Pharm. USA, Inc. v. Pfizer, Inc., 395 F.3d 1324, 1333 (Fed. Cir. 2005) (internal citations omitted) (affirming district court's finding that plaintiff failed to demonstrate reasonable apprehension of imminent suit). Clearly, if Harman thought that MIT's filing of a patent infringement complaint against it was *imminent* on March 14, 2005, it never would have sent a handful of executives clear across the country, or for one executive from another country, to meet with MIT to continue licensing discussions.

² The fact that MIT subsequently filed suit against Harman has *no relevance* to this Court's assessment of "reasonable apprehension," as reasonable apprehension must be assessed at the time Harman filed its complaint. See Holley, 2004 WL 3119017, at *4.

plaintiff which 1) stated that several of the claims of defendant's patent read directly on plaintiff's accused product; 2) discussed what would likely happen if a judgment of infringement were rendered and what damages would be likely to flow from such a finding; and 3) included a deadline of two weeks for plaintiff to respond to the correspondence. See id. at *1-2, 4. This Court found that such comments did not equate to an express accusation of infringement, and ultimately were insufficient to show, by a "totality of circumstances" that there was a real and immediate controversy. See id. at *4.

Similarly, in another case, in finding that defendant's correspondence to plaintiff suggesting that the parties engage in licensing negotiations was insufficient to show an actual controversy, the Court noted that the fact that defendant's counsel had authored a letter did not change the nature of the dispute. Livorsi, 268 F. Supp. 2d at 999, n.2.

"In the end, the question is whether the relationship between the parties can be considered a 'controversy,' and that inquiry does not turn on whether the parties have used particular 'magic words' in communicating with one another." EMC Corp. v. Norand Corp., 89 F.3d 807, 812 (Fed. Cir. 1996). In this case, there was no controversy – simply ongoing business discussions. "The Declaratory Judgment Act was intended to protect threatened parties, not to drag a non-threatening patentee into court." Shell Oil, 970 F.2d at 889. At the time Harman filed suit, MIT had not threatened Harman with infringement litigation, and none of its actions could have lead a reasonable person to believe otherwise.

B. Even If This Court Finds An Actual Controversy Did Exist At The Time Harman Filed Suit, It Should Decline Jurisdiction In This Case.

"Even if there is an actual controversy, the district court is not required to exercise declaratory judgment jurisdiction, but has discretion to decline that jurisdiction." EMC Corp., 89

F.3d at 810. “[A]s long as the district court acts in accordance with the purposes of the Declaratory Judgment Act and the principles of sound judicial administration, the court has broad discretion to refuse to entertain a declaratory judgment action.” Id. at 813-14.

Courts routinely decline to exercise jurisdiction in cases in which the exercise of jurisdiction would provide incentives inconsistent with the policies of declaratory judgments. Such is the case here, where the parties are engaged in ongoing license negotiations, and a declaratory judgment plaintiff files a complaint “to obtain a more favorable bargaining position in its ongoing negotiations with the patentee” where the patentee is clearly trying to avoid a lawsuit. Id. at 814. Courts also regularly decline to exercise declaratory judgment jurisdiction if the action has been filed for forum shopping purposes, such as filings intended “to pre-empt anticipated litigation and deprive the party of its choice of forum.” See, e.g., Trost v. Bauer & Azuradisc, Inc., 2001 WL 845477, at *5 (N.D. Ill. July 24, 2001) (refusing to exercise jurisdiction despite presence of actual controversy where “Plaintiffs raced to the courthouse to Defendants’ detriment”) (attached as Ex. F).

These are exactly the circumstances of Harman’s filing. Harman filed suit during ongoing licensing negotiations in order to better its bargaining position. Harman’s complaint is also an attempt to litigate in a forum convenient to Harman’s counsel, and *inconvenient* to all others involved in this case. This Court should decline to exercise jurisdiction in this case.

II. This Court Should Transfer This Case To The District Of Massachusetts.

Finally, if the Court does not believe that this case cries out for dismissal, MIT alternatively seeks transfer of this case to the United States District Court for the District of Massachusetts for consolidation with MIT's affirmative patent infringement action currently pending there.

This Court should transfer this case to the District of Massachusetts pursuant to 28 U.S.C. § 1404(a), which reads: "For the convenience of parties and witnesses, in the interest of justice, a district court may transfer any civil action to any other district or division where it might have been brought." As this Court has held,

Transfer is appropriate under section 1404(a) where the moving party establishes: (1) that venue is proper in the transferor district; (2) that venue is proper in the transferee district; (3) that the transfer will serve the convenience of the parties and the witnesses and will promote the interest of justice.

Medi USA L.P. v. Aircast Inc., 1995 WL 330914, at *2 (N.D. Ill. May 31, 1995) (Holderman, J.) (granting motion to transfer where all of defendant's documents and witnesses were in transferee jurisdiction) (attached as Ex. G).

Harman has claimed that venue is proper in this district, and this Court may agree with Harman based on MIT's contacts with Illinois.³ However, the District of Massachusetts is a *more* appropriate venue in which Harman could have filed its declaratory judgment complaint.

³ Although not addressed in detail herein, trying this case in this district would offend traditional notions of fair play and substantial justice, as there are insufficient minimum contacts between MIT and this forum to support personal jurisdiction in this case. If the Court agrees, it can dismiss Harman's complaint based on lack of personal jurisdiction. Alternatively, it could transfer this action to be tried in Massachusetts pursuant to 28 U.S.C. § 1406(a), which reads: "The district court of a district in which is filed a case laying venue in the wrong division or district shall dismiss, or if it be in the interest of justice, transfer such case to any district or division in which it could have been brought."

28 U.S.C. § 1391(b) and (c) describe the appropriate venue for declaratory judgment actions arising under the patent laws of the United States:

b) A civil action wherein jurisdiction is not founded solely on diversity of citizenship may, except as otherwise provided by law, be brought only in (1) a judicial district where any defendant resides, if all defendants reside in the same State, (2) a judicial district in which a substantial part of the events or omissions giving rise to the claim occurred, or a substantial part of property that is the subject of the action is situated, or (3) a judicial district in which any defendant may be found, if there is no district in which the action may otherwise be brought.

(c) For purposes of venue under this chapter, a defendant that is a corporation shall be deemed to reside in any judicial district in which it is subject to personal jurisdiction at the time the action is commenced. In a State which has more than one judicial district and in which a defendant that is a corporation is subject to personal jurisdiction at the time an action is commenced, such corporation shall be deemed to reside in any district in that State within which its contacts would be sufficient to subject it to personal jurisdiction if that district were a separate State, and, if there is no such district, the corporation shall be deemed to reside in the district within which it has the most significant contacts.

Thus, Harman could have filed its declaratory judgment action in the District of Massachusetts because under §§ 1391(b)(1) and (c), MIT resides there.

The final inquiry in the venue analysis is whether a transfer to the Massachusetts District Court will serve the convenience of the parties and witnesses and promote the interest of justice.

Factors considered in determining convenience of the parties and witnesses include “(1) [plaintiff’s] choice of forum; (2) the site of material events; (3) the availability of evidence in each forum; and (4) the convenience to the witnesses and parties of litigating in the respective forums.” Holley, 2004 WL 3119017, at *5.

In a case like the current case, “where the plaintiff’s choice is not its resident forum, the chosen forum is entitled to less deference.” Id., at *6. Thus, it matters little that Harman chose

this district in which to try its case. The “site of material events” test is inapplicable to declaratory judgment actions concerning patent validity, enforceability or infringement.

On the contrary, in infringement cases, witness convenience is considered of heightened importance. Id. As discussed above, all of MIT’s fact witnesses are most likely to be from Massachusetts. Harman’s witnesses are most likely to be from either Washington D.C. or California. Thus, it is *inconvenient* for *all* witnesses to keep the case in this district, and convenience of at least MIT’s witnesses would be increased by a transfer to Massachusetts. The same is true about availability of the evidence – none is available in Illinois, and MIT’s evidence is available in Massachusetts, so evidence availability also weighs in favor of a transfer.

In considering convenience of the parties, “the court should consider the parties’ respective residences and their ability to bear the costs of litigating in a particular forum.” Id., at *7. Neither party is a resident of this district. MIT is a resident of Massachusetts. Importantly, MIT is a non-profit educational institution, and is far less equipped to deal with the fiscal pressures of long-distance litigation than Harman. (See Turner Decl., ¶5.)

Finally, the interest of justice weighs in favor of a transfer to the Massachusetts District Court. A common factor in this consideration is whether there is a possibility to transfer the action to a forum in which other actions are pending from the same transaction. This is precisely the case here. MIT has an action against Harman for infringement of the ‘685 patent pending in the District of Massachusetts. Any claims of invalidity and unenforceability can be tried as defenses and/or affirmative counterclaims in that action.

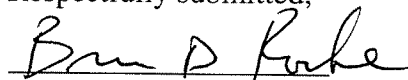
If this Court does not dismiss this case, it should transfer the case to be heard in Massachusetts.

REQUEST FOR RELIEF

WHEREFORE, for all of these reasons, MIT respectfully requests that the Court enter an Order dismissing Harman's complaint in its entirety, or in the alternative, transferring the action to the District of Massachusetts for consolidation with MIT's pending suit against Harman, and award MIT such further relief as the Court deems just and proper.

May 13, 2005

Respectfully submitted,



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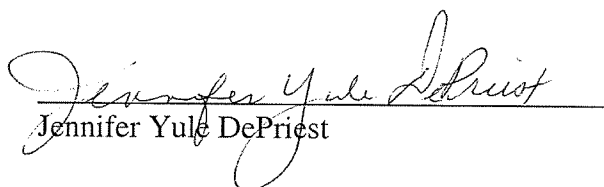
Attorneys for Massachusetts Institute of Technology

CERTIFICATE OF SERVICE

The undersigned attorney certifies that she served a true and correct copy of the foregoing **NOTICE OF MOTION** and **DEFENDANT MASSACHUSETTS INSTITUTE OF TECHNOLOGY'S MOTION TO DISMISS, OR IN THE ALTERNATIVE TRANSFER, PLAINTIFF HARMAN INTERNATIONAL INDUSTRIES' COMPLAINT** and **MEMORANDUM IN SUPPORT OF DEFENDANT MASSACHUSETTS INSTITUTE OF TECHNOLOGY'S MOTION TO DISMISS, OR IN THE ALTERNATIVE TRANSFER, PLAINTIFF HARMAN INTERNATIONAL INDUSTRIES' COMPLAINT** on the following counsel of record by facsimile and by messenger delivery before 4:00 p.m. on May 13, 2005:

William A. Streff, Jr.
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Jennifer Yule DePriest

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS**

HARMAN INTERNATIONAL INDUSTRIES,)
INCORPORATED,)

Plaintiff,)

v.)

Case No. 1:05-CV-01481

MASSACHUSETTS INSTITUTE OF)
TECHNOLOGY,)

Defendant.)

**DECLARATION OF JOHN H. TURNER, JR. FILED IN SUPPORT OF
DEFENDANT MASSACHUSETTS INSTITUTE OF TECHNOLOGY'S
MOTION TO DISMISS, OR IN THE ALTERNATIVE TRANSFER,
PLAINTIFF HARMAN INTERNATIONAL INDUSTRIES' COMPLAINT**

I, John H. Turner, Jr., state:

1. I am Associate Director of the Technology Licensing Office of the Massachusetts Institute of Technology ("MIT").

2. I am familiar with the facts of the above-captioned case, and submit this declaration as support for MIT's Motion To Dismiss, Or In The Alternative Transfer, Plaintiff Harman International Industries' Complaint.

3. Defendant MIT is a non-profit educational and research institution organized under the corporate laws of the Commonwealth of Massachusetts with a principal place of administration in Cambridge, Massachusetts.

4. MIT employs approximately 12,500 employees who work at MIT's facilities in Cambridge and Lexington, Massachusetts. Over 10,000 students currently attend MIT at its Cambridge, Massachusetts campus. All of MIT's senior management and executives work in MIT's facilities in Massachusetts. All licensing of MIT's patent rights is controlled and supervised by MIT's employees in Massachusetts. MIT's counsel is located in Boston.

5. As a non-profit educational organization, litigation expenses are a significant issue for MIT, and the burden of litigating in a foreign forum such as the Northern District of Illinois would be extremely onerous and costly.

6. MIT is the exclusive owner of U.S. Patent No. 5,177,685, entitled "Automobile Navigation System Using Real Time Spoken Driving Instructions," which issued on January 5, 1993 (the "'685 patent"). The two inventors listed on the face of the '685 patent, James R. Davis and Christopher M. Schmandt, assigned all rights, title and interest in the patent to MIT. On information and belief, Mr. Schmandt currently resides in Massachusetts, and Mr. Davis currently resides in Canada.

7. Robert Swartz, an independent contractor, has been working to commercialize several MIT-owned patents, including the '685 patent, for the past several years.

8. From 2003 through March of 2005, Mr. Swartz and others at MIT were engaged in license negotiations with Harman.

9. On information and belief, neither Mr. Swartz nor any other person on behalf of MIT ever threatened litigation, or expressed to Harman that MIT was planning to sue Harman at any time during the approximately two years of license negotiations.

10. On the morning of March 14, 2005, Harman executives and counsel traveled to Cambridge, Massachusetts, to meet with MIT executives including myself on behalf of the Technology Licensing Office. Among those attending the meeting on MIT's behalf, in addition to myself, were Mr. Swartz, Robert Fadel (Director of Finance for the MIT Media Laboratory), Walter Bender (Executive Director and Senior Research Scientist for the MIT Media Laboratory), and Thomas Sadtler (Associate Director at the MIT Media Laboratory). Among those attending the meeting on Harman's behalf were Edwin C. Summers (Vice President and General Counsel for Harman), Robert P. Hart (Chief Intellectual Property Counsel for Harman), Dr. Tim Bast (European IP Counsel for Harman), John Peracchio (Senior Vice President, Business Administration & Legal Affairs of Harman/Becker Automotive Systems (a Harman subsidiary)), Kevin L. Brown (Senior Vice President and Chief Financial Officer of Harman/Becker Automotive Systems (a Harman subsidiary)), and Meredith Martin Addy, Esq. (Intellectual Property Attorney of the law firm Brinks Hofer Gilson & Lione, counsel for Harman). The purpose of this meeting was to continue the ongoing license negotiations. At no time during the meeting did MIT threaten to file suit against Harman. At no time during the meeting did any Harman representative mention anything about filing a lawsuit against MIT. At the close of that meeting, Harman executives shook hands with the MIT representatives present, and expressed that Harman would get back to MIT about discussing the potential for taking a license to MIT's '685 patent "within a week or two."

11. Rather than continuing the negotiations as it had stated it would, Harman filed the current declaratory judgment action on the very same March 14, 2005 morning it was meeting with MIT.

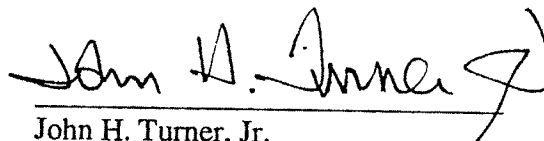
12. On May 12, 2005, MIT filed suit against Harman in the United States District Court for the District of Massachusetts, alleging that certain Harman products infringe the '685 patent.

I declare under the penalty of perjury that the foregoing is true and accurate and that this Declaration was executed on May 13, 2005.

John H. Turner, Jr.
Associate Director
Technology Licensing Office
Massachusetts Institute of Technology

12. On May 12, 2005, MIT filed suit against Harman in the United States District Court for the District of Massachusetts, alleging that certain Harman products infringe the '685 patent.

I declare under the penalty of perjury that the foregoing is true and accurate and that this Declaration was executed on May 13, 2005.

A handwritten signature in black ink, appearing to read "John H. Turner, Jr.", with a stylized flourish at the end.

John H. Turner, Jr.
Associate Director
Technology Licensing Office
Massachusetts Institute of Technology



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ATTN: **61784-008 KMottley 4870**

Report Printed: MAY 05 2005
In Date

BUSINESS SUMMARY

**HARMAN INTERNATIONAL INDUSTRIES
INCORPORATED**
1101 Pennsylvania Ave Nw #1010
Washington, DC 20004

This is a **headquarters** location.
Branch(es) or division(s) exist.

Web site: www.harman.com
Telephone: 202 393-1101
Fax: 202 393-3064
Chief executive: BERNARD A GIROD, CEO-V CHB
Stock symbol: HAR
Year started: 1953
Employs: 10,606 (5 here)
Financial statement date: DEC 31 2004
Sales F: \$2,711,374,000
Net worth F: \$1,081,939,000
History: CLEAR
Financing: SECURED
Financial condition: GOOD
SIC: 3651

Line of business: Mfg audio and video electronic components

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D&B's Credit Limit Recommendation

D&B's industry and risk-based limit guidance

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Payment Trends Profile

Payment trends and industry benchmarks

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D-U-N-S Number: 04-765-3555

D&B Rating: **5A2**

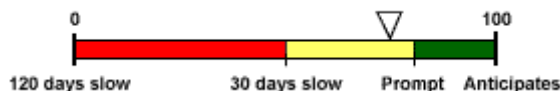
Financial strength: 5A is **\$50 million and over.**

Composite credit appraisal: 2 is **good.**

D&B PAYDEX®:

12-Month D&B PAYDEX: **74**

When weighted by dollar amount, payments to suppliers average 9 days beyond terms.



Based on trade collected over last 12 months.

NEW! [Enhanced payment trends and industry benchmarks are available on this business](#)

SPECIAL EVENTS

04/27/2005

STOCK/BOND ISSUANCE/REDEMPTION/REPURCHASE: According to published reports, Harman International Industries, Incorporated announced that it has declared a cash dividend of \$.0125 cents per share for the third quarter ended March 31, 2005. The quarterly dividend will be paid on May 25, 2005, to each stockholder of record as of the close of business on May 11, 2005.

04/22/2005

EARNINGS UPDATE: According to published reports, comparative operating results for the 9 months ended March 31, 2005: Sales of \$2,222,857,000, Net Income of \$162,613,000; compared to Sales of \$1,979,337,000, Net Income of \$104,914,000 for the comparable period in the prior year.

03/15/2005

STOCK/BOND ISSUANCE/REDEMPTION/REPURCHASE: According to published reports, Harman International Industries Inc, announced that the company has reinitiated purchasing shares under its previously announced share repurchase program. The Board of Directors has authorized the repurchase of up to 16,000,000 shares under this program.

01/28/2005

EARNINGS UPDATE: According to published reports, comparative operating results for the 6 months ended December 31, 2004: Sales of \$1,480,293,000, Net Income of \$99,097,000; compared to Sales of \$1,288,905,000, Net Income of \$61,249,000 for the comparable period in the prior year.

SUMMARY ANALYSIS

D&B Rating: **5A2**
Financial strength: 5A indicates **\$50 million and over.**
Composite credit appraisal: 2 is **good.**

This credit rating was assigned because of D&B's assessment of the company's financial ratios and its cash flow. For more information, see the D&B Rating Key.

Below is an overview of the company's rating history since 01/01/91:

D&B Rating	Date Applied
5A2	03/08/94
5A3	10/23/91
5A2	01/01/91

The Summary Analysis section reflects information in D&B's file as of May 2, 2005.

NEW! Have **HARMAN INTERNATIONAL INDUSTRIES INCORPORATED's** payment habits changed over time? 

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Additional D&B products, monitoring services and specialized investigations are available to help you evaluate this company or its industry. Call Dun & Bradstreet's Customer Resource Center at 1.800.234.3867 from anywhere within the U.S. or visit our website at www.dnb.com.

HISTORY

The following information was reported **11/15/2004**:

Officer(s): BERNARD A GIROD, CEO-V CHB+
SIDNEY HARMAN, CHB+
GREGORY P STAPLETON, PRES-COO+

FRANK MEREDITH, EXEC VP-CFO-SEC
ERICH GEIGER, CTO

DIRECTOR(S): The officers identified by (+) and Shirley M Hufstedler, Ann McLaughlin Korologos, Edward H Meyer and Stanley A Weiss.

Business started 1953.

This business originally started in 1953 and subsequently incorporated in the state of Delaware in 1980.

BACKGROUND/OWNERSHIP:

This is a publicly traded company. Shares are traded on the New York Stock Exchange under the symbol "HAR". As of August 31, 2004, there are no shareholders holding over 20% of the outstanding stock. The officers and directors as a group beneficially owned 11.4%.

ACQUISITIONS/DISPOSITIONS:

On July 16, 2003, the company acquired Wavemakers Inc, located in Vancouver, British Columbia.

BERNARD A GIROD born 1942. Up to 1986 and for the majority of his career with Permacel, Company. 1986-present active here.

SIDNEY HARMAN born 1918. In 1953, founded Harman-Kardon Inc, which was acquired by subject in 1985. 1977-1980 secretary of commerce for the United States. 1980 to present active here.

GREGORY P STAPLETON born 1947. He has been President of the Company since July 2000, Chief Operating Officer of the Company since 1998 and a director of the Company since 1997. Mr. Stapleton also served as President of the Companys OEM Group from 1987 to 1998. His current term as a director expires at the 2006 Annual Meeting of Stockholders.

FRANK MEREDITH born 1957. Executive Vice President and Chief Financial Officer here, July 2000 - present. Chief Financial Officer of the Company, February 1997 - present. Secretary, November 1998 - present. .

ERICH GEIGER. Antecedents not available.

ANN MCLAUGHLIN KOROLOGOS. She has been a director of the Company since 1995. She served as Secretary of Labor of the United States from 1987 until 1989. Ms. Korologos is a director of AMR Corporation (and its subsidiary, American Airlines, Inc.), Federal National Mortgage Association, Host.

SHIRLEY M HUFSTEDLER. She has been a director of the Company since September 1986. Ms. Hufstedler has been in private law practice for the past 20 years.

EDWARD H MEYER. He has been a director of the Company since 1990. Mr. Meyer has been the Chairman, Chief Executive Officer and President of Grey Global Group, Inc.

STANLEY A WEISS. Stanley A Weiss as been a director of the Company since 1997. From 1991 to 1997, Mr. Weiss served as Chairman of American Premier, Inc.

CORPORATE FAMILY

Click below to buy a Business Information Report on that family member.
For an expanded, more current corporate family view, use D&B's Global Family Linkage product.

Buy Selected Report(s)

Subsidiaries (US):

 Becker of North America Inc	Upper Saddle River, NJ	DUNS # 05-635-0218
 Crown Audio, Inc.	Elkhart, IN	DUNS # 00-507-9884
 Fosgate Inc	Hayward, CA	DUNS # 06-877-8729
 Harman Music Group, Incorporated	Sandy, UT	DUNS # 02-092-4197
 Harman Pro North America, Inc.	Northridge, CA	DUNS # 16-110-2256
 Harman Wisconsin, Inc	Prairie Du Chien, WI	DUNS # 09-019-0849

 Harman-Becker Automotive Systems Inc	Martinsville, IN	DUNS # 01-925-5041
 Harman-Kardon Inc	Northridge, CA	DUNS # 04-142-8970
 Infinity Systems Inc	Woodbury, NY	DUNS # 04-743-4584
 Jbl Incorporated	Northridge, CA	DUNS # 19-627-3874
 Jbl Incorporated	Woodbury, NY	DUNS # 00-837-4605
 Lexicon, Inc	Bedford, MA	DUNS # 05-179-2836
 Madrigal Audio Laboratories, Inc	Bedford, MA	DUNS # 10-896-3075

Subsidiaries (International):

 Becker Holding GmbH	KARLSBAD, GERMANY	DUNS # 34-119-1492
 HARMAN BELGIUM NV	BRUSSEL, BELGIUM	DUNS # 28-288-8668
 Harman Consumer Manufacturing A/S	RINGKOBING, DENMARK	DUNS # 30-541-8980
 HARMAN FRANCE	NOISY LE SEC, FRANCE	DUNS # 26-138-8003
 HARMAN INTERNATIONAL JAPAN CO.,LTD.	TAITO-KU, JAPAN	DUNS # 69-064-9884
 HARMAN U K LTD	Chester, UK (ENGLAND, SCOTLAND, WALES, N.IRELAND)	DUNS # 39-465-0691
 QNX Software Systems Ltd	Kanata, CANADA	DUNS # 24-436-2604
 Studer Professional Audio GmbH	Regensdorf, SWITZERLAND	DUNS # 48-246-5650
 Wavemakers Inc	Vancouver, CANADA	DUNS # 20-071-4124

Branches (US):

 Harman International Industries Incorporated	Phoenix, AZ	DUNS # 03-881-0458
 Harman International Industries Incorporated	Atherton, CA	DUNS # 92-753-6466
 Harman International Industries Incorporated	Chatsworth, CA	DUNS # 82-899-4590
 Harman International Industries Incorporated	Northridge, CA	DUNS # 11-826-0939
 Harman International Industries Incorporated	Northridge, CA	DUNS # 09-952-0467
 Harman International Industries Incorporated	Woodland Hills, CA	DUNS # 87-292-5136
 Harman International Industries Incorporated	New York, NY	DUNS # 09-297-1761
 Harman International Industries Incorporated	Woodbury, NY	DUNS # 08-557-9329
 Harman International Industries Incorporated	Woodbury, NY	DUNS # 13-130-6748
 Harman International Industries Incorporated	Nashville, TN	DUNS # 10-402-1428
 Harman International Industries Incorporated	Nashville, TN	DUNS # 96-553-0157
 Harman International Industries Incorporated	Round Rock, TX	DUNS # 15-317-2650

Buy Selected Report(s)

BUSINESS REGISTRATION

CORPORATE AND BUSINESS REGISTRATIONS PROVIDED BY MANAGEMENT OR OTHER SOURCE

The Corporate Details provided below may have been submitted by the management of the subject business and may not have been verified with the government agency which records such data.

Registered Name: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED

Business type:	CORPORATION	Common stock	
Corporation type:	PROFIT	Authorized shares:	50,000,000
Date incorporated:	JAN 31 1980	Par value:	\$0.0100
State of incorporation:	DELAWARE		
Filing date:	JAN 31 1980		

Where filed: SECRETARY OF STATE/CORPORATIONS DIVISION, DOVER, DE

OPERATIONS

11/15/2004

Description: Harman International Industries Inc designs, manufactures and markets high quality audio and video products for the consumer and professional markets.

Terms are net 30 days (100%). Has 1,850 account(s). Sells to consumer and professional markets.
Territory : Worldwide.

The Company experiences seasonal fluctuations in sales and earnings. The first fiscal quarter is generally the weakest due to automotive model changeovers and the summer holidays in Europe. Variations in seasonal demand among end-user markets may also cause operating results to vary from quarter to quarter.

Employees: 10,606 which includes officer(s). 5 employed here.

Facilities: Leases 10,000 sq. ft. on 10th floor of a 12 story concrete block building.

Location: Central business section on well traveled street.

Branches: This business has multiple branches, detailed branch/division information is available in Dun & Bradstreets linkage or family tree products.

Subsidiaries: This business has multiple subsidiary, detailed subsidiary information is available in Dun & Bradstreets linkage or family tree products.

SIC & NAICS

SIC:

Based on information in our file, D&B has assigned this company an extended 8-digit SIC. D&B's use of 8-digit SICs enables us to be more specific to a company's operations than if we use the standard 4-digit code.

NAICS:

334310 Audio and Video Equipment Manufacturing
334310 Audio and Video Equipment Manufacturing
334310 Audio and Video Equipment Manufacturing
334310 Audio and Video Equipment Manufacturing

The 4-digit SIC numbers link to the description on the Occupational Safety & Health Administration (OSHA) Web site. Links open in a new browser window.

36510000	Household audio and video equipment
36510100	Household audio equipment
36510102	Audio electronic systems
36510200	Household video equipment

D&B PAYDEX

NEW! [Enhanced payment trends and industry benchmarks are available on this business](#)

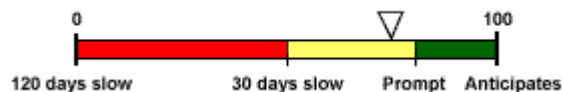
The D&B PAYDEX is a unique, dollar weighted indicator of payment performance based on up to 72 payment experiences as reported to D&B by trade references.

3-Month D&B PAYDEX: **73**

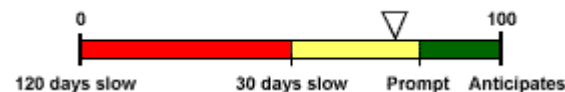
When weighted by dollar amount, payments to suppliers average 11 days beyond terms.

12-Month D&B PAYDEX: **74**

When weighted by dollar amount, payments to suppliers average 9 days beyond terms.



Based on trade collected over last 3 months.



Based on trade collected over last 12 months.

When dollar amounts are not considered, then approximately 81% of the company's payments are within terms.

PAYMENT SUMMARY

The Payment Summary section reflects payment information in D&B's file as of the date of this report.

Below is an overview of the company's dollar-weighted payments, segmented by its suppliers' primary industries:

	Total Rcv'd (#)	Total Dollar Amt (\$)	Largest High Credit (\$)	Within Terms (%)	Days Slow <31 31-60 61-90 90> (%)			
Top industries:								
Telephone communictns	9	124,650	95,000	100	-	-	-	-
Trucking non-local	8	30,000	10,000	98	2	-	-	-
Nonclassified	7	71,350	45,000	100	-	-	-	-
Mfg computers	3	72,500	55,000	62	38	-	-	-
Ret-direct selling	3	17,750	15,000	100	-	-	-	-
Whol electronic parts	2	22,500	20,000	100	-	-	-	-
Short-trm busn credit	2	12,500	10,000	100	-	-	-	-
Help supply service	1	15,000	15,000	50	-	-	50	-
Whol computers/softwr	1	15,000	15,000	-	-	50	-	50
Employment agency	1	15,000	15,000	50	50	-	-	-
OTHER INDUSTRIES	32	55,850	10,000	55	40	4	1	-
Other payment categories:								
Cash experiences	0	0	0					
Payment record unknown	3	800	500					
Unfavorable comments	0	0	0					
Placed for collections:								
With D&B	0	0						
Other	0	N/A						
Total in D&B's file	72	452,900	95,000					

The highest **Now Owes** on file is \$25,000

The highest **Past Due** on file is \$7,500

D&B receives nearly 400 million payment experiences each year. We enter these new and updated experiences into D&B Reports as this information is received.

NEW!
How does HARMAN INTERNATIONAL INDUSTRIES INCORPORATED's payment record compare to its industry?

A Payment Trends Profile will show you - [View Now](#)

PAYMENT DETAILS

Detailed payment history

Date Reported (mm/yy)	Paying Record	High Credit (\$)	Now Owes (\$)	Past Due (\$)	Selling Terms	Last Sale Within (months)
04/05	Ppt	5,000	0	0	N30	6-12 mos
	Ppt	1,000	250	0	N30	1 mo
	Ppt	1,000	500			
	Ppt	250	0			2-3 mos
	Ppt	250	0	0	N30	2-3 mos
	Ppt-Slow 30	10,000	0			2-3 mos
	Ppt-Slow 30	250	0			2-3 mos
	Ppt-Slow 90	15,000	0	0		6-12 mos
	Slow 60-120	15,000	2,500	2,500		2-3 mos
03/05	Ppt	95,000	2,500	0		1 mo
	Ppt	25,000	20,000	0		1 mo
	Ppt	15,000	2,500	0	N30	1 mo
	Ppt	10,000	2,500	0		1 mo
	Ppt	10,000	500	0		1 mo
	Ppt	5,000	2,500	0		1 mo
	Ppt	5,000	1,000	0	N15	1 mo
	Ppt	2,500	750	0		1 mo
	Ppt	2,500	0	0		6-12 mos
	Ppt	2,500	0	0	N30	2-3 mos
	Ppt	1,000	750	0		1 mo
	Ppt	1,000	0	0	N30	1 mo
	Ppt	1,000	0	0		6-12 mos
	Ppt	1,000	0	0		4-5 mos
	Ppt	500	0	0		1 mo
	Ppt	500	0	0	N30	6-12 mos
	Ppt	250	0	0	N30	6-12 mos
	Ppt	100	100	0		1 mo
	Ppt	50	50	0		1 mo
	Ppt-Slow 30	55,000	0	0		2-3 mos
	Ppt-Slow 30	15,000	15,000	5,000	N30	1 mo
	Ppt-Slow 30	1,000	250	0	N15	1 mo
	Ppt-Slow 90	250	250	250	N15	6-12 mos
	Slow 5	2,500	2,500	1,000		1 mo
	Slow 5	750	500			1 mo
	Slow 10	2,500	0	0		2-3 mos
	Slow 30	250	0	0		6-12 mos
	Slow 180	50	50	50		
	(038)	500	0	0	N30	2-3 mos
	(039)	250	250	0	N45	
02/05	Ppt	45,000	25,000	0		1 mo
	Ppt	5,000	2,500	0		1 mo
	Ppt	500	250	0		1 mo
	Ppt	500	500	0		1 mo
	Ppt	250	100	0		1 mo
	Ppt	50	0	0		1 mo
	Slow 5-30	250	0	0		4-5 mos
11/04	Slow 5	2,500	0	0		2-3 mos
	(048)	750				1 mo
	Satisfactory.					
10/04	Ppt	15,000	0	0		6-12 mos
	Ppt	2,500	0	0		6-12 mos

	Ppt	2,500	0	0		6-12 mos
	Ppt	1,000	0	0		2-3 mos
	(053)	50	0	0		2-3 mos
09/04	Slow 5-30	7,500	0	0		6-12 mos
08/04	Ppt	2,500	0	0		6-12 mos
06/04	Ppt	10,000	0	0		6-12 mos
	Ppt	7,500	0	0		6-12 mos
	Slow 30	1,000	0	0	N30	6-12 mos
05/04	Ppt	7,500	7,500	7,500	N30	1 mo
	Slow 5	0	0			1 mo
	Slow 5	0	0			1 mo
	Slow 90	500	0	0		6-12 mos
04/04	Ppt	2,500	0	0		6-12 mos
	Ppt	500	0	0	N30	6-12 mos
	Ppt	250	0	0		6-12 mos
	Ppt	50	0	0		6-12 mos
03/04	Ppt	750	0	0		4-5 mos
	Ppt	50	0	0		6-12 mos
02/04	Ppt	250	0	0		6-12 mos
01/04	Ppt	20,000	0	0	N30	6-12 mos
	Ppt	10,000	10,000	0		
	Slow 60	2,500	0	0		1 mo

Payment experiences reflect how bills are met in relation to the terms granted. In some instances payment beyond terms can be the result of disputes over merchandise, skipped invoices etc.

Each experience shown is from a separate supplier. Updated trade experiences replace those previously reported.

NEW! How does HARMAN INTERNATIONAL INDUSTRIES INCORPORATED's payment record compare to its industry?



A Payment Trends Profile will show you - [View Now](#)

STATEMENT UPDATE

02/10/2005

Interim Consolidated statement dated DEC 31 2004:

Assets

Cash	299,938,000
Accts Rec	402,351,000
Inventory	326,331,000
Other Curr Assets	108,467,000

Curr Assets \$1,137,087,000

Fixt & Equip	495,220,000
Goodwill	376,618,000
Other Assets	130,792,000

Total Assets \$2,139,717,000

Liabilities

Accts Pay	170,103,000
Short-Term Borrowings	3,548,000
Accruals	340,540,000
Taxes	128,262,000
L.T. Liab-(1yr)	865,000

Curr Liabs \$643,318,000

Senior Long-Term Debt	335,450,000
L.T. Liab-Other	79,010,000
COMMON STOCK	805,000
ADDIT. PD.-IN CAP	388,545,000
TOTAL ACCUM OTHER COMPREHENSIVE INC	105,037,000
RETAINED EARNINGS	760,034,000
TREASURY STOCK	(172,482,000)

Total \$2,139,717,000

From JUL 01 2004 to DEC 31 2004 sales \$1,480,293,000; cost of goods sold \$980,404,000. Gross profit \$499,889,000; operating expenses \$338,452,000. Operating income \$161,437,000; other expenses \$10,181,000; net income before taxes \$151,256,000; Federal income tax \$52,159,000; net income \$99,097,000.

Statement obtained from Securities And Exchange Commission. Prepared from books without audit.

Accounts receivable shown net less \$8,577,000 allowance.

Explanations

The net worth of this Company includes intangibles.

FINANCE

11/15/2004

Three-year statement comparative:

	Fiscal Consolidated Jun 30 2003	Fiscal Consolidated Jun 30 2004	Interim Consolidated Sep 30 2004
Current Assets	967,624,000	1,204,035,000	1,199,554,000
Current Liabs	487,410,000	662,354,000	660,719,000
Current Ratio	1.99	1.82	1.82
Working Capital	480,214,000	541,681,000	538,835,000
Other Assets	736,034,000	784,775,000	796,276,000
Noncurrent Liabs	560,463,000	451,460,000	405,568,000
Net Worth	655,785,000	874,996,000	929,543,000
Sales	2,228,519,000	2,711,374,000	
Net Income (Loss)	105,428,000	157,883,000	

Interim Consolidated statement dated SEP 30 2004:

Assets

Cash	342,594,000
Accts Rec	427,720,000
Inventory	319,416,000
Other Curr Assets	109,824,000

Curr Assets \$1,199,554,000

Fixt & Equip	451,182,000
Goodwill	254,796,000
Other Assets	90,298,000

Total Assets \$1,995,830,000

Liabilities

Accts Pay	189,270,000
Short Term Borrowings	3,874,000
Accruals	321,624,000
Taxes	142,553,000
L.T. Liab-(1yr)	3,398,000

Curr Liabs \$660,719,000

Senior Long-Term Debt	339,039,000
L.T. Liab-Other	66,529,000
COMMON STOCK	793,000
ADDIT. PD.-IN CAP	363,964,000
TREASURY STOCK	(171,851,000)
RETAINED EARNINGS	695,448,000
ACCUM. OTHER COMP. INCOME	41,189,000

Total \$1,995,830,000

From JUL 01 2004 to SEP 30 2004 sales \$691,706,000; cost of goods sold \$470,307,000. Gross profit \$221,399,000; operating expenses \$159,474,000. Operating income \$61,925,000; other expenses \$6,882,000; Federal income tax \$21,371,000. Net income \$33,672,000.

Prepared from books without audit.

The Net Worth of this company includes intangibles.

The report was updated using information the company filed with the Securities and Exchange Commission.

KEY BUSINESS RATIOS

Statement date: DEC 31 2004
Based on this number of establishments: 18

Firm		Industry Median	
Return of Sales:	6.7	Return of Sales:	1.3
Current Ratio:	1.8	Current Ratio:	2.5
Assets / Sales:	UN	Assets / Sales:	60.1
Total Liability / Net Worth:	UN	Total Liability / Net Worth:	74.7

UN = Unavailable

PUBLIC FILINGS

The following Public Filing data is for information purposes only and is not the official record. Certified copies can only be obtained from the official source.

SUITS

Suit amount: \$0
Status: Dismissal with prejudice
DOCKET NO.: 02CV9380
Plaintiff: PHOENIX SOUND INC DBA SOUND FACTORY
Defendant: HARMON INTERNATIONAL INDUSTRIES INC, NORTHRIDGE, CA
Where filed: U.S. FEDERAL DISTRICT COURT, NEW YORK, NY

Date status attained: 07/10/2003
Date filed: 11/25/2002
Latest Info Received: 08/06/2004

If it is indicated that there are defendants other than the report subject, the lawsuit may be an action to clear title to property and does not necessarily imply a claim for money against the subject.

UCC FILINGS

Collateral: All Assets - Accounts receivable - Products and proceeds - Contract rights - and OTHERS
Type: Original
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2286328
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 10/21/1999
Latest Info Received: 11/22/1999

Type: Amendment
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NA, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2340299
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 08/08/2000
Latest Info Received: 11/08/2000
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Amendment
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 2345110
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 09/06/2000
Latest Info Received: 11/27/2000
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NA, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2354759
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 10/24/2000
Latest Info Received: 01/03/2001
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Amendment
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0300005304633
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 06/06/2003
Latest Info Received: 07/22/2003
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Termination
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0400008948409
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 09/24/2004
Latest Info Received: 09/30/2004
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Collateral: All Negotiable instruments and proceeds - All Account(s) and proceeds - All General intangibles(s) and proceeds - All Contract rights and proceeds - and OTHERS

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 01079464
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 04/24/2001
Latest Info Received: 05/07/2001

Collateral: Negotiable instruments and proceeds - Account(s) and proceeds - Computer equipment and proceeds - Communications equipment and proceeds - and OTHERS

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 99659009
Filed with: UCC DIV, SALT LAKE CITY, UT

Date filed: 10/21/1999
Latest Info Received: 12/29/1999

Collateral: Negotiable instruments and proceeds - Account(s) and proceeds - General intangibles(s) and proceeds - Contract rights and proceeds - Computer equipment

and proceeds
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A,
HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0001956033
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 10/20/1999
Latest Info Received: 12/01/1999

Collateral: Assets - Computer equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A,
HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002018374
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 08/28/2000
Latest Info Received: 10/12/2000
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Collateral: Equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A,
HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002020300
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 09/06/2000
Latest Info Received: 10/12/2000
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Collateral: Assets - Computer equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A,
HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002030191
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 10/24/2000
Latest Info Received: 12/12/2000
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A,
HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002206585
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 06/04/2003
Latest Info Received: 06/18/2003
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A,
HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002206586
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 06/04/2003

Latest Info Received: 07/30/2003
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT NATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002291409
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

Date filed: 09/24/2004
Latest Info Received: 11/05/2004
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Collateral: All Inventory including proceeds and products - All Account(s) including proceeds and products - All Chattel paper including proceeds and products - All General intangibles(s) including proceeds and products - and OTHERS

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 1064299 6
Filed with: SECRETARY OF STATE/UCC DIVISION, DOVER, DE

Date filed: 07/10/2001
Latest Info Received: 08/07/2001

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 3140263 8
Filed with: SECRETARY OF STATE/UCC DIVISION, DOVER, DE

Date filed: 06/03/2003
Latest Info Received: 06/26/2003
Original UCC filed date: 07/10/2001
Original filing no.: 1064299 6

Collateral: All Account(s) and proceeds - All General intangibles(s) and proceeds - All Contract rights and proceeds - All Equipment and proceeds

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 99211935
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 10/20/1999
Latest Info Received: 11/08/1999

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 00165871
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 08/24/2000
Latest Info Received: 09/11/2000
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Collateral: Equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED

Filing number: 00171370
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 09/01/2000
Latest Info Received: 09/18/2000
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Collateral: Assets - Computer equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 00206287
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 10/24/2000
Latest Info Received: 11/13/2000
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0306051118721
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 06/05/2003
Latest Info Received: 06/11/2003
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0306051118745
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 06/05/2003
Latest Info Received: 06/11/2003
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Type: Termination
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0409240969579
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 09/24/2004
Latest Info Received: 09/29/2004
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Collateral: Assets including proceeds and products - Account(s) including proceeds and products - Computer equipment including proceeds and products - General intangibles(s) including proceeds and products - and OTHERS
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONALASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 01-713115
Filed with: UCC DIV, SALT LAKE CITY, UT

Date filed: 04/24/2001
Latest Info Received: 05/21/2001

Collateral: Account(s) and proceeds - Leased Assets and proceeds - General intangibles(s) and proceeds - Contract rights and proceeds - and OTHERS
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2001038492
Filed with: DEPARTMENT OF FINANCE & REVENUE/RECORDER OF DEEDS, WASHINGTON, DC
Date filed: 04/25/2001
Latest Info Received: 08/10/2001

Collateral: Assets and proceeds - Account(s) and proceeds - Computer equipment and proceeds - General intangibles(s) and proceeds - and OTHERS
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 1170617
Filed with: SECRETARY OF STATE UCC DIVISION, PHOENIX, AZ
Date filed: 04/24/2001
Latest Info Received: 08/10/2001

Type: Termination
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 1170617
Filed with: SECRETARY OF STATE UCC DIVISION, PHOENIX, AZ
Date filed: 12/21/2004
Latest Info Received: 02/14/2005
Original UCC filed date: 04/24/2001
Original filing no.: 1170617

Collateral: Account(s) and proceeds - Computer equipment and proceeds - General intangibles(s) and proceeds - Contract rights and proceeds - Equipment and proceeds
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMAPNY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 200101789240
Filed with: SECRETARY OF THE COMMONWEALTH/UCC DIVISION, BOSTON, MA
Date filed: 04/24/2001
Latest Info Received: 07/18/2001

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMAPNY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 200321228660
Filed with: SECRETARY OF THE COMMONWEALTH/UCC DIVISION, BOSTON, MA
Date filed: 06/04/2003
Latest Info Received: 07/07/2003
Original UCC filed date: 04/24/2001
Original filing no.: 200101789240

There are additional UCC's in D&B's file on this company available by contacting 1-800-234-3867.

The public record items contained in this report may have been paid, terminated, vacated or released prior to the date this report was printed.

GOVERNMENT ACTIVITY

Activity summary

Borrower (Dir/Guar):	NO
Administrative debt:	NO
Contractor:	NO
Grantee:	NO
Party excluded from federal program(s):	NO

Possible candidate for socio-economic program consideration

Labor surplus area:	YES (2005)
Small Business:	N/A
8(A) firm:	N/A

The details provided in the Government Activity section are as reported to Dun & Bradstreet by the federal government and other sources.

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C

Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court,
 N.D. Illinois, Eastern Division.
 INFOSYS INC., an Illinois corporation, Plaintiff,

v.

BILLINGNETWORK.COM, INC., a Florida
 corporation, Defendant.

No. 03 C 3047.

Aug. 27, 2003.

Todd Sheldon Parkhurst, Charles Lincoln Philbrick,
 Holland & Knight LLC, Chicago, IL, for Plaintiff.

Jeffrey A. Schulman, Wolin and Rosen, Chicago, IL,
John M. Adams, Thomas Michael Joseph, Price &
 Adams, Pittsburgh, PA, for Defendant.

MEMORANDUM OPINION AND ORDER

ZAGEL, J.

*1 Defendant Billingnetwork.com, Inc. ("BNC") is a Florida-based company that offers an Internet-based billing system to doctors, medical practices, hospitals, and other companies that provide medical billing services. On October 20, 1999, BNC filed a patent application in the name of two BNC employees for its Internet-based medical billing system known as "DirectAccess." On April 16, 2002, U.S. Patent No. 6,374,229 ("the '229 patent") was issued on this application. While this application was pending, many Internet-based medical billing systems were developed by other companies, including plaintiff InfoSys, Inc.

On or about October 29, 2002, BNC learned that InfoSys was selling its own Internet-based medical billing system. On March 16, 2003, BNC sent InfoSys an offer to enter into a license agreement under the '229 patent. After receiving a telephone message from an InfoSys employee, BNC instructed its attorneys to send InfoSys a follow-up letter on April 28, 2003. Further correspondence between the parties then ensued followed by InfoSys filing a Complaint for a declaratory judgment of the '229

patent against BNC on June 10, 2003. BNC now moves to dismiss this action for lack of subject matter jurisdiction, lack of personal jurisdiction, and improper venue under Federal Rules of Civil Procedure 12(b)(1), 12(b)(2), and 12(b)(3). [FN1]

FN1. InfoSys's Motion for Leave to File a Sur-Reply is granted, but the Sur-Reply does not affect my decision regarding personal and subject matter jurisdiction.

Personal Jurisdiction

In order to defeat BNC's motion to dismiss for lack of personal jurisdiction, InfoSys need only establish a prima facie case of personal jurisdiction over BNC. Euromarket Designs, Inc. v. Crate & Barrel Ltd., 96 F.Supp.2d 824, 833 (N.D.Ill.2000). In patent infringement cases, Federal Circuit law controls, even in determining the question of whether to exercise personal jurisdiction over out-of-state defendants. Hildebrand v. Steck Mfg. Co., 279 F.3d 1351, 1354 (Fed.Cir.2002). The Court also applies Federal Circuit law in personal jurisdiction inquiries over out-of-state patentees in declaratory judgment actions. *Id.*

The analysis for determining whether personal jurisdiction exists is a two-step inquiry. *Id.* First, the defendant must be amenable to service of process under the appropriate state long-arm statute. *Id.* Second, I must determine that the defendant's activities within the forum state satisfy the minimum contacts requirement of the due process clause. Hildebrand, 279 F.3d at 1354. In this case, the Illinois long-arm statute authorizes the exercise of personal jurisdiction to the fullest extent authorized under the United States Constitution and the Illinois Constitution. Facilitec Corp. v. Grease Stopper, Inc., No. 01 C 2971, 2002 WL 226758, at *2 n. 1 (N.D.Ill. Feb.13, 2002). Because of this, "the statutory analysis collapses into a due process inquiry, and [I] need not consider whether defendants engaged in any of the acts enumerated in the long-arm statute." LFG, LLC v. Zapata Corp., 78 F.Supp.2d 731, 735 (N.D.Ill.1999).

*2 For an exercise of personal jurisdiction to satisfy due process, the defendant must have minimum contacts with the forum such that maintenance of the suit does not offend "traditional notions of fair play

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and substantial justice." International Shoe Co. v. Washington, 326 U.S. 310, 316, 66 S.Ct. 154, 90 L.Ed. 95 (1945). This determination depends on whether the plaintiff asserts general or specific jurisdiction against the defendant. "General jurisdiction ... is for suits neither arising out of nor related to the defendant's contacts, and it is permitted only where the defendant has 'continuous and systematic general business' contact with the forum." RAR, Inc. v. Turner Diesel, Ltd., 107 F.3d 1272, 1277 (7th Cir.1997). Specific jurisdiction, on the other hand, refers to jurisdiction over a defendant in a suit "arising out of or related to the defendant's contacts with the forum." Helicopteros Nacionales de Colombia, S.A. v. Hall, 466 U.S. 408, 414 n. 8, 104 S.Ct. 1868, 80 L.Ed.2d 404 (1984).

In the instant case, the Complaint contains no direct allegation that the Court may exercise personal jurisdiction, either general or specific, over BNC as a non-resident defendant. Plaintiff merely refers to venue, stating that "[v]enue is proper in this District pursuant to 28 U.S.C. § 1391(b)(2)." BNC maintains that this Court has neither general nor specific jurisdiction over it. In response, InfoSys argues that BNC has subjected itself to personal jurisdiction of this Court-either general or specific-by virtue of its purposeful and continuous sales efforts in Illinois through its interactive website and national marketing campaigns directed at the healthcare industry.

General Jurisdiction

A website can be a purposeful contact with the forum state for purposes of general jurisdiction. Euromarket Designs, Inc., 96 F.Supp.2d at 837. An exercise of personal jurisdiction is proper where a defendant clearly does business with residents of the forum state over the Internet, i.e., the website is "interactive." Zippo Mfg. Co. v. Zippo Dot Com, Inc., 952 F.Supp. 1119, 1124 (W.D.Pa.1997).

In weighing the issue of personal jurisdiction in the context of the Internet, courts typically use a sliding scale analysis to ascertain what level of Internet interaction subjects a defendant to personal jurisdiction.... The analysis consists of three levels: (1) where the defendant conducts business over the Internet through its active website; (2) where the defendant maintains an interactive website; and (3) where the defendant maintains a passive website.

...

The first category [level 1] consists of situations where a defendant clearly does business over the Internet. If the defendant enters into contracts with residents of a foreign jurisdiction ... over the

Internet, personal jurisdiction is proper.... Websites in this category are interactive and allow for [a] transaction between the user and the website owner.

...

The second category [level 2] is occupied by interactive websites where a user can exchange information with the host computer. In these cases, the exercise of jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the website.

*3 ...

The final category [level 3] consists of situations where a defendant has simply posted information on an Internet website which is accessible to users in foreign jurisdictions. A passive website that does little more than make information available to those who are interested in it is not grounds for the exercise of personal jurisdiction.

This Court has addressed this issue in Aero Products Int'l, Inc. v. Intex Corp., No. 02 C 2590, 2002 WL 31109386, at *5 (N.D.Ill. Sept.20, 2002) (internal quotation marks and citations omitted).

Here, InfoSys argues that BNC's website is sufficiently interactive to confer either general or specific jurisdiction. Although the website is clearly not a level 1 website because it does not include an area where potential customers can enter into a contract with BNC over the Internet, it does have a high "level of interactivity" that is of a high "commercial nature." Aero Prods. Int'l, Inc., 2002 WL 31109386, at *5. First, the company's name of "Billingnetwork.com, Inc." indicates that the website plays an integral role in the business and thus has a highly commercial nature. In addition, the website states that personal information from potential clients for BNC's Internet billing system known as "DirectAccess" can be collected from "registration forms, product order information, and other web forms." Furthermore, although "DirectAccess" clients cannot enter into a contract exclusively through the website, the website does profess that one can become a client online and that "all enrollment and training can be accomplished online." Even if this is not the case, however, the process for becoming a "DirectAccess" client can at least be initiated through an exchange of information via the website, and, once under contract, clients may use the website as the primary means for implementing the product and training new users.

In addition to marketing "DirectAccess" for purchase online and initiating client relationships, the website

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solicits non-customers to become "partners" with BNC. The website describes these partnerships as "strategic relationships with other billing centers and companies who operate in the healthcare industry," and the intent for forming them is "to create new opportunities and new customers for BillingNetwork and our partners." Accordingly, these partnerships have a strong commercial nature. Anyone interested in becoming a BNC "partner" may enroll with BNC directly from the Partners page of the website, and thus there is interconnectivity of a commercial nature.

The website also solicits software resellers, medical sales representatives, and practice management consultants to join its "network of qualified Value Added Resellers (VARs)." Anyone interested in doing so is invited to fill out an online form to join. Therefore, we have more interconnectivity of a commercial nature. Finally, there are other interconnectivity features but of a lesser commercial nature; the website offers an opportunity to subscribe to its periodic newsletter, and, on a separate page for investors, the website invites potential investors to fill out a form for more information "about investment opportunities" in the company.

*4 In the end, whether the BNC website is sufficiently interactive to confer general jurisdiction by itself is, to say the least, a close call. On the one hand is a line of cases in which courts found that comparable sites did not confer jurisdiction. [\[FN2\]](#) On the other hand is an equally strong line of cases in which courts found that comparable sites did confer jurisdiction. [\[FN3\]](#) In the final analysis, BNC makes the determinative point when it cites to [Watchworks, Inc. v. Total Time, Inc.](#), No. 01 C 5711, 2002 WL 424631, at *6 (N.D.Ill. Mar.19, 2002) for the observation that cases conferring jurisdiction partly on the basis of Internet activity "reflect that personal jurisdiction is typically determined based not only on the defendant's Internet activities but also on its non-Internet activities." [\[FN4\]](#) In contrast to these situations, the *Watchworks* Court found no jurisdiction because the plaintiff provided evidence only of an employee and its investigator accessing the website and no evidence of other Illinois residents accessing the website or requesting that it be placed on defendant's mailing list. 2002 WL 424631, at *6 [note 8](#). In sum, there is no case where general jurisdiction was conferred on the basis of an interactive website in the absence of non-website factors evidencing intent for a defendant's product or website to reach a particular state.

[FN2. See *Haemoscope Corp. v. Pentapharm AG*, No. 02 C 4261, 2002 WL 31749195 \(N.D.Ill.Dec.9, 2002\)](#) (finding no jurisdiction on the basis of a website that allowed users to request additional product information from the site, but then informed the user that the allegedly infringing device was not yet available in Illinois); [Haggerty Enters., Inc. v. Lipan Indus. Co., Ltd.](#), No. 00 C 766, 2001 WL 968592, at *6 (N.D.Ill. Aug.23, 2001) (finding no jurisdiction on the basis of a website that listed no prices and did not offer direct sales, but did allow the user to contact the defendant through its website to obtain further information); [LaSalle Nat'l Bank v. Vitro, Sociedad Anonima de Capital Variable](#), 85 F.Supp.2d 857, 862 (N.D.Ill.2000) (finding no jurisdiction on the basis of a website that did not allow for direct sales, but did offer users access to on-line catalogs and gave them the ability to interact directly with defendant's customer service representatives).

[FN3. See *Publications Int'l, Ltd. v. Burke/Triolo, Inc.*](#), 121 F.Supp.2d 1178, 1183 (N.D.Ill.2000) (finding jurisdiction on the basis of a hybrid website which it found to be highly commercially interactive because, after requesting a catalog through the website, users received defendant's catalog and could place orders); [LFG, LLC v. Zapata Corp.](#), 78 F.Supp.2d 731 (N.D.Ill.1999) (finding jurisdiction on the basis of an Internet website portal, directing users to other websites through interactive dialogue and through which Illinois users were invited to place themselves on defendant's mailing list); [Maritz, Inc. v. Cybergold, Inc.](#), 947 F.Supp. 1328 (E.D.Mo.1996) (finding jurisdiction on the basis of a website providing information about a forthcoming electronic mailing list service that would forward to users advertisements that matched their selected interests).

[FN4. See *Publications Int'l, Ltd.*](#), 121 F.Supp.2d at 1182-83 (finding that the defendant had extensively distributed the allegedly infringing materials in Illinois); [LFG, LLC](#), 78 F.Supp.2d at 736-37 (not only emphasizing that the defendant's website was actually an Internet portal but also that 25 Illinois residents requested to be

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placed on the defendant's mailing list); [Maritz, Inc., 947 F.Supp. 1328](#) (finding the defendant's website had been accessed at least 311 times in Missouri, the state in which personal jurisdiction was at issue).

Here, assuming *arguendo* that InfoSys can establish the minimal level of interactivity of the BNC website that is sufficient to establish that the website is a hybrid (level 2) website, general jurisdiction does not exist because of the absence of any non-website activities by BNC. InfoSys claims that BNC marketed its website in Illinois and nationwide through its advertisements and listings on several Internet directories that position the website as a source for medical billing solutions, but these Internet advertisements and accompanying Internet-based publicity are insufficient in connection with the hybrid website to establish personal jurisdiction. Generally, national advertisements (including those on the Internet) are insufficient to subject a defendant to jurisdiction in Illinois. [Aero Products Int'l, Inc., 2002 WL 31109386, at *7](#). There must be evidence that the defendant intended its advertisements to reach a particular state. *Id.* Here, InfoSys has cited no evidence indicating that BNC has specifically directed its Internet based advertisements into Illinois or targeted its website at Illinois residents, just as there was no such evidence in *Aero Products Int'l, Inc.* In addition, InfoSys has not offered evidence that BNC had Illinois clients, potential Illinois clients such as in *LFG, LLC*, or even any Illinois visitors to the website as in *Maritz*. All InfoSys has is BNC's alleged national advertising, but "[t]he placement of a product into the stream of commerce, without more, is not an act of the defendant purposefully directed toward the forum State." *Id.* at *6 (quoting [Asahi-Metal Indus. Co. v. Superior Court](#), 480 U.S. 102, 112, 107 S.Ct. 1026, 94 L.Ed.2d 92 (1987)). Accordingly, because of the absence of any non-website factors in conjunction with the arguably hybrid website, general jurisdiction is not appropriate in this case.

Specific Jurisdiction

*5 As mentioned above, specific jurisdiction is appropriate when the plaintiff's claim is related to or arises out of defendant's contacts within the state. [Helicopteros Nacionales de Colombia, S.A., 466 U.S. at 414 n. 8](#). For specific jurisdiction, the Federal Circuit has established a three-prong test that must be satisfied: (1) whether the defendant purposefully directed its activities at the residents of the forum; (2) whether the claim arises out of or is related to those

activities; and (3) whether assertion of personal jurisdiction is reasonable and fair. [HollyAnne Corp. v. TFT, Inc., 199 F.3d 1304, 1307 \(Fed.Cir.1999\)](#). InfoSys asserts specific jurisdiction based on the website, but, once again, there are no allegations, as *Aero Prods. Int'l, Inc.*, that BNC's website was specifically targeted at Illinois residents or that Illinois residents had initiated any actual or potential business relationships with BNC due to visiting the website. [2002 WL 31109386, at *6-7](#). Accordingly, InfoSys cannot satisfy the first prong of the *HollyAnne* test and therefore specific jurisdiction is also not appropriate in this case.

Subject Matter Jurisdiction

Along with the lack of personal jurisdiction, BNC argues that this Court cannot exercise subject matter jurisdiction over this dispute because there is no "actual controversy" as required under the Declaratory Judgment Act, [28 U.S.C. § 2201](#). See [Spectronics Corp. v. H.B. Fuller Co., 940 F.2d 631, 634 \(Fed.Cir.1991\)](#). To establish an "actual controversy" in a patent invalidity declaratory action, (1) there must be an explicit threat or action by the patentee, which creates a reasonable apprehension on the part of the declaratory judgment plaintiff that it will face an infringement suit, and (2) plaintiff must actually have either produced the device or have prepared to produce the device. [Arrowhead Indus. Water, Inc. v. Ecolochem, 846 F.2d 731, 736 \(Fed.Cir.1988\)](#); see also, [Spectronics Corp., 940 F.2d at 632](#). The test for whether a defendant's conduct creates a reasonable apprehension is a "totality of the circumstances" test. [Shell Oil Co. v. Amoco Corp., 970 F.2d 885, 888 \(Fed.Cir.1992\)](#).

Here, the totality of the circumstances does not indicate that BNC's actions constituted a threat of litigation which created a reasonable apprehension of an infringement suit. At the onset, the test for reasonable apprehension is an objective test. [Indium Corp. of America v. Semi-Alloys, Inc., 781 F.2d 879, 883 \(Fed.Cir.1985\)](#). The test therefore requires more than the nervous state of mind of a possible infringer; it requires that the objective circumstances support such an apprehension. [Phillips Plastic Corp. v. Kato Hatsujou Kabushiki Kaisha, 57 F.3d 1051, 1053-54 \(Fed.Cir.1995\)](#). A purely subjective apprehension is insufficient to satisfy the actual controversy requirement. [Indium Corp. of America, 781 F.2d at 883](#). Therefore, the subjective beliefs of InfoSys employees and clients as to whether litigation would be initiated-- and even to what extent they believed this--is entirely irrelevant.

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*6 Regarding BNC's objective conduct, it is black letter law that merely offering a license does not create a reasonable apprehension. Phillips Plastic Corp. v. Kato Hatsujou Kabushiki Kaisha, 57 F.3d 1051, 1053 (Fed.Cir.1995). Threats of litigation within the context of license negotiations also do not create a reasonable apprehension. Shell, 970 F.2d at 887. In *Shell*, the following circumstances occurred:

[b]efore the meeting ended, offers were again made and rejected. Shell indicated that the parties were at an impasse and that litigation appeared likely. Oliver questioned whether Shell could file a declaratory judgment action since Shell was not manufacturing its catalyst. Vance responded that Shell was manufacturing the catalyst and asked, "I assume you will enforce your patent?" A representative of Amoco replied, "Yes," and the meeting ended.

Id. *Shell* held that the patentee's statements that the alleged infringer's activities "fall within," are "covered by," and are "operations under" the patent did not create a reasonable apprehension. *Id.* at 889.

Here, InfoSys's main support for the purported threats of litigation are a couple of letters and some follow-up phone calls. However, the letters include no explicit or implicit threat of litigation and clearly state that there are merely offers to take a license. For example, the March 16, 2003 letter also includes the following language:

We are not charging you with infringement of the patent, but are bringing the patent to your attention so that you may consider licensing the patent to avoid a potential conflict with the patent. We are offering to license the patent on a non-exclusive basis for a modest royalty.

In addition, the follow-up phone calls in reference to the letters do not create a reasonable apprehension because they were made within the context of license negotiations. Shell, 970 F.2d at 887. Accordingly, InfoSys's assertion that BNC has made threats against it is without support in fact or law. BNC has not engaged in any extraordinary or threatening conduct by merely sending letters and/or making telephone calls to InfoSys or its customers in which it used language that was either identical or very similar to the language used in *Shell*. Therefore, subject matter jurisdiction does not exist. [FN5]

[FN5]. Having found that there is no basis for either personal jurisdiction or subject matter jurisdiction, it is unnecessary to consider whether venue is proper.

For the reasons above, BNC's Motion to Dismiss and InfoSys's Motion for Leave to File a Sur-Reply are GRANTED.

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- [2003 WL 23798687](#) (Trial Motion, Memorandum and Affidavit) Defendant's Reply to Plaintiff's Response to Defendant's Motion to Dismiss (Aug. 07, 2003)
- [2003 WL 23798674](#) (Trial Motion, Memorandum and Affidavit) Plaintiff's Response to Defendant's Motion to Dismiss (Jul. 24, 2003)
- [2003 WL 23798659](#) (Trial Pleading) Complaint (Jun. 10, 2003)
- [1:03CV03947](#) (Docket) (Jun. 10, 2003)

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Motions, Pleadings and Filings

United States District Court,
N.D. Illinois, Eastern Division.
HOLLEY PERFORMANCE PRODUCTS, INC.,
Plaintiff,
v.
BARRY GRANT, INC. Defendant.
No. 04 C 5758.

Dec. 20, 2004.

MEMORANDUM OPINION AND ORDER

CONLON, J.

*1 [Other docket entry] The motion to dismiss [9-1] is granted. This case is dismissed without prejudice. Alternatively, the court declines to exercise jurisdiction. The motion to transfer venue pursuant to 28 U.S.C. § 1404(a) [9-2] is moot. ENTER MEMORANDUM OPINION AND ORDER.

[For further detail see order attached to the original minute order.]

Holley Performance Products, Inc. ("Holley") sues Barry Grant, Inc. ("Grant"), for declaratory judgment of non-infringement and invalidity of Grant's United States Patent No. 6,286,817 ("the '817 patent"). Grant moves to dismiss the complaint for lack of a justiciable controversy pursuant to Fed.R.Civ.P. 12(b)(1). If the court determines it has subject matter jurisdiction over Holley's declaratory judgment claim, Grant requests the court decline to exercise jurisdiction due to pending litigation between the parties in another forum. In the alternative, if the court determines it has subject matter jurisdiction and that it should exercise jurisdiction, Grant moves to transfer this action to the United States District Court for the Northern District of Georgia pursuant to 28 U.S.C. § 1404(a).

BACKGROUND

The '817 patent claims an automotive carburetor fuel bowl with a fuel level indicator that determines the level of fuel in the bowl during operation of the engine. Grant Mot. at 1-2. On August 10, 2004, Grant sent Holley's CEO a letter stating:

It has come to my client's attention that Holley has recently begun the production and sale of a new line of carburetors that includes improved features, including the fuel level indicator ...

I have reviewed the Barry Grant '817 patent, and have compared the patent with one of the Holley carburetors. The sight glass on the Holley carburetor is positioned at the exact level as described in the Barry Grant '817 patent, and has all of the features described in the claims of the patent ...

Since it appears that several of the claims of the '817 patent read directly on the new Holley carburetor, we request that you confer with your intellectual property attorneys concerning the patent and the likelihood of infringement of the patent by the new Holley carburetor.

As you probably know, a patent gives its owner the right to exclude others from making, using, selling, offering for sale, and importing goods that infringe the claims of a patent. If a judgment of infringement of a patent is rendered in a U.S. District Court, the damages for infringement of the patent can be the loss of profits by the patent owner, attorneys' fees, prejudgment interest, and, in some instances, up to three times actual damages if the infringement of the patent was willful.

With such severe damages likely to be assessed for infringement, we suggest that Holley's representatives review the patent and compare it with the Holley carburetors so as to make Holley's own determination with regard to infringement of the '817 patent.

We request that if the conclusion made by or on behalf of Holley is that there is no infringement, please explain in detail why the claims of the patent are not infringed.

*2 If you or your counsel have any questions concerning this matter, let me know. We would expect to receive a written response to this matter within two weeks of the date of this letter.

Id. at Ex. A; Compl. ¶ 2. The August 10, 2004 letter was the only communication between Holley and Grant prior to Holley's filing of this declaratory judgment complaint on September 1, 2004. Id. at 2. On October 19, 2004, Grant filed suit against Holley in the United States District Court for the Northern District of Georgia for infringement of the '817 patent. Holley is a Delaware corporation with its principal place of business in Bowling Green, Kentucky. Compl. ¶ 5. Grant is a Georgia

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corporation with its principal place of business in Dahlonega, Georgia. Id. at ¶ 6.

DISCUSSION

I. Motion to Dismiss

The Declaratory Judgment Act ("the Act") provides a district court may declare the rights and legal obligations of an interested party "in a case of actual controversy." 28 U.S.C. § 2201; *see also Applexion S.A. v. Amalgamated Sugar Co.*, No. 95 C 858, 1995 U.S. Dist. LEXIS 4957, *7 (N.D.Ill. Apr. 14, 1995). The declaratory judgment plaintiff bears the burden of establishing the existence of an actual case or controversy. Cardinal Chemical Co. v. Morton Int'l Inc., 508 U.S. 83, 95 (1993). "An actual controversy exists if there is a definite and concrete dispute between adverse parties amenable to immediate and definitive determination." *Applexion*, 1995 U.S. Dist. LEXIS 4957 at *8 (citations omitted). For an actual controversy to exist in a patent action, there must be both: (1) action by the patent holder creating in the declaratory plaintiff a reasonable apprehension of an infringement suit; and (2) present activity by the declaratory plaintiff that the patentee asserts infringes the patent, or concrete steps taken with the intent to conduct such activity. BP Chemicals Ltd. v. Union Carbide Corp., 4 F.3d 975, 978 (Fed.Cir.1993). "The purpose of the two-part test is to determine whether the need for judicial attention is real and immediate or is prospective and uncertain of occurrence." *Id.* (citation omitted). The test is objective. Arrowhead Indus. Water, Inc. v. Ecolochem, Inc., 846 F.2d 731, 735 (Fed.Cir.1988). Reasonable apprehension must exist at the time suit is filed. Jervis B. Webb Co. v. Southern Sys., Inc., 742 F.2d 1388, 1398-99 (Fed.Cir.1984).

Grant contends the August 10, 2004 letter was insufficient to provide Holley reasonable apprehension that Grant would file suit against Holley for infringement of the '817 patent. Grant asserts the August 10 letter formally notified Holley of the '817 patent and sought to engage Holley in a dialogue regarding the new Holley carburetor and the '817 patent. Grant asserts Holley ignored the letter's invitation for non-judicial dialogue to determine whether an actual controversy existed, and instead raced to file a lawsuit. Grant contends Holley's complaint must be dismissed because there was no actual controversy or objectively reasonable apprehension of imminent litigation when the complaint was filed.

*3 Holley contends the letter clearly created a direct

threat of an infringement suit. Holley asserts Grant's claims are belied by its own actions because Grant did in fact file an infringement suit. Holley contends the August 10, 2004 letter suggested Grant's counsel carefully studied Holley's products as they relate to the '817 patent and determined Holley's products infringed the patent. The letter described infringement damages and fees, and gave a two week deadline for Holley to inform Grant of its infringement position. Holley contends it was entitled to consider the letter in light of the companies' past competitive relationship and litigation history.

The crux of this dispute is whether Holley had a reasonable apprehension that it would face an infringement suit. There is no dispute that Holley has satisfied the second prong of the declaratory judgment jurisdictional test; Holley currently sells products that contain the accused device. Holley must establish, however, that the feared lawsuit was real and immediate, rather than merely speculative. Hyatt Int'l Corp. v. Coco, 302 F.3d 707, 712 (7th Cir.2002). "The sole requirement for jurisdiction under the Act is that the conflict be real and immediate, i.e., that there be a true, actual 'controversy' required by the Act." Arrowhead, 846 F.2d at 734-35 (citations omitted). "The difference between an abstract question and a 'controversy' contemplated by the Declaratory Judgment Act is necessarily one of degree, and it would be difficult, if it would be possible, to fashion a precise test for determining in every case whether there is such a controversy." Gen-Probe Inc. v. Vysis, Inc., 359 F.3d 1376, 1379-80 (Fed.Cir.2004) (citations omitted). An express charge of infringement by the patent holder necessarily creates a controversy adequate to support jurisdiction. Cardinal, 508 U.S. at 96. If a patent holder's conduct and statements fall short of an express charge, the court considers the "totality of the circumstances" to determine whether reasonable apprehension existed when the complaint was filed. Arrowhead, 846 F.2d at 736.

In *Arrowhead*, the court found reasonable apprehension existed when the totality of circumstances reflected the patent holder's litigation intent. Arrowhead, 846 F.2d at 737. Before plaintiff filed suit, however, the patent holder in *Arrowhead* sent plaintiff multiple threatening letters, told plaintiff's customers that plaintiff was infringing the patent, resulting in customer requests for indemnification, and requested that plaintiff be found an infringer in separate federal litigation. *Id.* Similarly, in *Applexion* this court found reasonable apprehension existed when the patent holder

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exhibited express and implied warnings of suit through communications to plaintiff's customers and five letters, stating, for example: "[we] cannot ignore the ongoing infringement activities of your client," and "[we have] no choice but to proceed upon the best information that [we] can obtain through diligent efforts. We consider that those diligent efforts have now been made." *Applexion*, 1995 U.S. Dist. LEXIS 4957 at *9-15; see also *Fina Research, S.A. v. Baroid Ltd.*, 141 F.3d 1479, 1482 (Fed.Cir.1998) (reasonable apprehension existed when patent holder wrote two letters, to which plaintiff responded, indicating patent holder considered product to be "an infringement of one or both of the subject patents," and intended "to vigorously enforce and protect its rights in the subject patents, including the filing of suit if necessary"); *EMC Corp. v. Norand Corp.*, 89 F.3d 807, 812-13 (Fed.Cir.1996) (reasonable apprehension existed in light of patent holder's letter indicating its inclination to turn the matter over to litigation counsel for action and urging business discussions to avoid "this matter escalating into a contentious legal activity," and the parties' three subsequent negotiation sessions).

*4 In contrast, the August 10, 2004 letter does not expressly accuse Holley of infringement. [FN1] Nor do the totality of circumstances dictate reasonable apprehension of imminent suit. Indeed, the "totality of circumstances" consist of a single communication between the parties. The August 10, 2004 letter indicates Grant compared Holley's product to the patent and concluded "it appears several of the claims of the '817 patent read directly on the new Holley carburetor." However, the letter clearly invites Holley to conduct its own comparison and analysis and to communicate with Grant regarding Holley's conclusions. The letter's discussion of the '817 patent and request for a response do not create an imminent threat of litigation. Although the letter discusses infringement damages, the damages discussion relates to Grant's request that Holley investigate the issue and, when read in context, impresses the serious nature of the issue on the reader.

[FN1]. In deciding a Rule 12(b)(1) motion to dismiss, the court may consider evidentiary materials outside the pleadings. *Nippon Exp. U.S.A. (Ill.), Inc. v. Mitsui Sumitomo Ins. Co. Ltd.*, No. 03 C 2524, 2004 U.S. Dist. LEXIS 6856, *5 (N.D.Ill. Apr. 21, 2004).

Holley argues it was entitled to consider the letter in the context of the parties' litigation history. However, unlike *Goodyear Tire & Rubber Co. v. Releasomers Inc.*, 824 F.2d 953 (Fed.Cir.1987) or *Vanguard*

Research, Inc. v. PEAT, Inc., 304 F.3d 1249 (Fed.Cir.2002), where an earlier lawsuit involving the same parties and same technology created a reasonable apprehension of an infringement suit, the only litigation history Holley cites is a single trademark case, brought by Holley against Grant, from almost seven years ago. The 1998 trademark case initiated by Holley over different subject matter is insufficient to create a reasonable apprehension that Holley faced an imminent--as opposed to speculative--lawsuit.

Holley recognizes the letter did not provide a deadline for filing suit. However, Holley contends the letter's two week deadline for a response reasonably caused the fear litigation would ensue if the two week deadline passed. This contention is belied by Holley's failure to respond to the letter, let alone file the declaratory action within the two week period. In other words, if Holley feared an infringement suit was imminent based on the letter's two week period, it is reasonable to expect Holley would have done something during the two week period. Moreover, this fear should have dissipated when the two weeks passed and an infringement suit did not follow. Indeed, Grant did not file suit until October 2004, more than two months after it sent the letter to Holley and a month and a half after Holley filed this suit. In any event, Grant's subsequent filing of an infringement suit is irrelevant to the reasonable apprehension prong because reasonable apprehension must be assessed as of the time Holley filed this complaint. *Jervis B. Webb Co. v. Southern Sys., Inc.*, 742 F.2d 1388, 1398-99 (Fed.Cir.1984).

Holley has not met its burden of establishing the existence of a real and immediate controversy requiring immediate judicial action. *Cardinal*, 508 U.S. at 95. Holley's assumption that an infringement suit was imminent was premature at the time it filed suit. Accordingly, the motion to dismiss for lack of a justiciable controversy must be granted.

II. Exercise of Jurisdiction

*5 Even if Holley established the existence of an actual controversy, and thus jurisdiction, this court would decline to exercise jurisdiction over the action. There is no absolute right to a declaratory judgment. *Serco Servs. Co., L.P. v. Kelley Co., Inc.*, 51 F.3d 1037, 1039 (Fed.Cir.1995). The exercise of jurisdiction over a declaratory judgment action rests within the sound discretion of the district court. *Id.*; *Wilton v. Seven Falls Co.*, 515 U.S. 277, 287-88 (1995) (rejecting argument that district courts may

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decline to exercise declaratory judgment jurisdiction only in exceptional circumstances). A district court may not dismiss a declaratory judgment solely because a subsequent parallel infringement suit is filed in another district. EMC Corp., 89 F.3d at 813 (citations omitted). Without other reasons, a dismissal would be contrary to the general rule favoring the forum where the first action was filed. *Id.* However, the court has discretion to make a reasoned judgment as to whether the investment of time and resources in the declaratory action will be worthwhile. *Id.*; Serco, 51 F.3d at 1039; Coleman Co., Inc. v. Black & Decker Corp., No. 95 C 7379, 1996 U.S. Dist. LEXIS 986, *12 (N.D.Ill. Jan. 29, 1996). The first-filed action is preferred, unless "considerations of judicial and litigant economy, and the just and effective disposition of disputes, requires otherwise." Coleman, 1996 U.S. Dist. LEXIS 986 at *12 (citations omitted).

The factors the court considers when deciding whether to dismiss a declaratory action in favor of litigation pending in a different district are the same as the factors considered when deciding to transfer venue to another district. *Id.*; 28 U.S.C. § 1404(a) (courts to consider the convenience of parties and witnesses and the interest of justice when deciding whether to transfer venue). To prevail on a motion to transfer under § 1404(a), a party must demonstrate: (1) venue is proper in both the transferor and transferee court; (2) transfer is for the convenience of the parties and witnesses; and (3) transfer is in the interests of justice. Pasulka v. Sykes, 131 F.Supp.2d 988, 994 (N.D.Ill.2001), quoting TruServ Corp. v. Neff, 6 F.Supp.2d 790, 793 (N.D.Ill.1998). The parties do not dispute that venue is appropriate both here and in the Northern District of Georgia. Therefore, the court considers the convenience of the parties and witnesses and the interests of justice.

A. Convenience of the Parties

In determining the convenience of the parties and witnesses, the court considers: (1) Holley's choice of forum; (2) the site of material events; (3) the availability of evidence in each forum; and (4) the convenience to the witnesses and parties of litigating in the respective forums. Confederation Des Brasseries de Belgique v. Coors Brewing Co., No. 99 C 7526, 2000 WL 88847, *3 (N.D.Ill. Jan. 20, 2000). Venue should be transferred only if there is a clear balance of inconvenience in the transferor district over the transferee district. Tsaparikos v. Ford Motor Co., No. 02 C 6899, 2002 WL 31844949, *1 (N.D.Ill.Dec. 18, 2002). "Venue may not be

transferred simply to shift inconvenience from the defendant to the plaintiff." *Id.*

*6 A plaintiff's choice of forum is generally given substantial weight under § 1404(a). Vandeveld v. Christoph, 877 F.Supp. 1160, 1167 (N.D.Ill.1995). However, where the plaintiff's choice is not its resident forum, the chosen forum is entitled to less deference. Bryant v. ITT Corp., 48 F.Supp.2d 829, 832 (N.D.Ill.1999). The Northern District of Illinois is not Holley's resident forum. Holley is a Delaware corporation with its corporate headquarters in Kentucky. Therefore, Holley's choice of forum is not given great deference and is only one of many factors the court considers. Plotkin v. IP Axess, Inc., 168 F.Supp.2d 899, 902 (N.D.Ill.2001).

The Northern District of Illinois is not the site of material events for the patent invalidity and noninfringement claims. "The material events of a patent infringement case do not revolve around a particular situs." Sitrick v. FreeHand Systems, Inc., No. 02 C 1568, 2003 WL 1581741 at *3 (N.D.Ill. Mar. 27, 2003). In other words, the comparison involved in determining whether a patent has been infringed does not implicate a specific location. *Id.*, citing Medi USA, L.P. v. Jobst Inst., Inc., 791 F.Supp. 208, 210 (N.D.Ill.1992).

The relative ease of access to sources of proof slightly favors transfer. The only contact this litigation has with the Northern District of Illinois is that Holley sells its products to Illinois citizens. Yet a majority of the documents relevant to Holley's claims are at Grant's corporate headquarters in Georgia. The evidence relating to the design, invention and patenting of the '817 patent is located at Grant's principal place of business in Georgia. Johnson Dec. at ¶ 9. The copying and shipping of documents does not typically impose a significant burden. All documents necessary to present both sides of the case can easily be transported to either venue. Hanley v. Omarc, Inc., 6 F.Supp.2d 770, 775 (N.D.Ill.1998). Nevertheless, Holley's business records are not located in this district either. As a result, there is more evidence available in the transferee forum than here.

The court must also consider witness convenience in determining whether transfer is appropriate. While the location of employee witnesses is generally afforded little weight in the convenience analysis, their location is important in an intellectual property infringement case. Matweld, Inc. v. Portaco, Inc., No. 04 C 1273, 2004 U.S. Dist. LEXIS 11483, *6-7 (N.D.

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Ill. June 21, 2004); Habitat Wallpaper and Blinds, Inc. v. K.T. Scott Ltd. Partnership, 807 F. Supp 470, 474 (N.D.Ill.1992). Grant's president is a resident of the requested transferee forum and is the named inventor of the '817 patent. Grant Dec. at ¶ 3. Grant lists three other Grant employees, including the vice-president of operations, sales manager and head of technical department, who would likely testify on Grant's behalf on the issues of infringement, willfulness, patent validity, and/or damages. In addition, Grant provides evidence that witness travel to Chicago would be extremely burdensome to the company's daily operations, due to the size and structure of the company.

*7 Holley contends it has more than three employee witnesses for whom travel to Gainesville, Georgia would be less convenient than travel to Chicago. Holley does not provide any evidence to support this assertion. Indeed, Grant has submitted evidence that the relative travel convenience to Holley from its Kentucky headquarters to either forum is approximately the same. However, Holley argues the Chicago forum is more convenient for a group of third party witnesses who manufacture part of the accused Holley product in Bourbon, Indiana. These witnesses are just within this court's subpoena power. Holley Resp. Ex. 1 (witnesses 99.7 miles away). In considering witness convenience, the court must look to the nature and quality of the witnesses' testimony, not just the number of witnesses in each venue. Confederation Des Brasseries de Belgique, 2000 WL 88847 at *4. Grant's witnesses, including the patent inventor, will clearly be critical to the infringement and non-validity case. It is not clear that the Indiana employees are as significant. In any event, there is no evidence that the Indiana witnesses will be hostile or reluctant to appear voluntarily, or that their testimony cannot be offered through deposition. Central States v. Kurtz Gravel Co., No. 98 C 2174, 1998 WL 684216, at *2 (N.D.Ill. Sept. 18, 1998). Therefore, witness convenience favors transfer to the Northern District of Georgia.

The court also must consider the convenience of the parties in its § 1404(a) determination. Specifically, the court should consider the parties' respective residences and their ability to bear the costs of litigating in a particular forum. Avesta Sheffield v. Olympic Continental Resources, L.L.C., No. 99 C 7647, 2000 WL 198462 at *7 (N.D.Ill. Feb. 14, 2000). Grant offers evidence that it is a smaller company than Holley. Grant has approximately 60-65 employees and conducted approximately \$9.8 million in business in 2003. Grant Dec. at ¶ 3. In

contrast, Grant contends Holley has approximately 990 employees and conducted about \$140 million in business in 2003. *Id.* While neither party is destitute, the relative size of the parties favors transfer to the Northern District of Georgia.

B. Interests of Justice

Finally, the court must consider whether transfer is in the interests of justice. The interests of justice analysis focuses on efficient functioning of the courts, rather than the private interests of the litigants. TIG Ins. Co. v. Brightly Galvanized Products, Inc., 911 F.Supp. 344, 346 (N.D.Ill.1996). In determining the interests of justice, the court considers the possibility of consolidation with related litigation. Serco, 51 F.3d at 1040. It is both possible and in the interests of justice to consolidate this case with the parties' infringement case in the Northern District of Georgia. "The court should not countenance the simultaneous litigation of essentially identical claims in two federal courts." Applexion, 1995 U.S. Dist. LEXIS 4957 at *13. Holley argues, without support, that the court should retain jurisdiction because it is unlikely the Georgia court has as much experience with patent law as this court. Both districts are equally capable of resolving federal patent litigation. Holley also argues transfer or declining to exercise jurisdiction will cause delay, and Holley submits evidence that the median time of case disposition in the Northern District of Illinois is 5.3 months, while the median time in the Northern District of Georgia is 8.8 months. While this court has set a discovery schedule, a review of the Georgia docket shows that both cases have made comparable progress. In the Georgia case, Holley has moved to dismiss and transfer venue, just as Grant has done here. This is precisely the type of duplicative litigation that warrants transfer to ensure efficient functioning of federal courts. It will be a significant waste of judicial economies for two separate courts to adjudicate issues regarding the same patent. There is great risk that consideration of the same patent by two separate federal courts will create inconsistent results, particularly with regard to claim construction rulings.

*8 Therefore, even if Holley established reasonable apprehension and jurisdiction, this court would decline to exercise jurisdiction based on its consideration of judicial and litigant economy, the just and effective disposition of disputes, and the factors appropriate for transferring venue. Coleman, 1996 U.S. Dist. LEXIS 986 at *12.

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CONCLUSION

The motion to dismiss is granted, and the motion to transfer venue is moot. Alternatively, the court declines to exercise jurisdiction.

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- [2004 WL 2256570](#) (Trial Pleading) Complaint for Declaratory Judgment (Sep. 01, 2004)

- [1:04CV05758](#) (Docket)
(Sep. 01, 2004)

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AE

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF ILLINOIS

SUMMONS IN A CIVIL CASE

HARMAN INTERNATIONAL INDUSTRIES,
INC.

V.

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY

CASE NUMBER:

05C 1481

ASSIGNED JUDGE:

JUDGE HOLDERMAN

DESIGNATED

MAGISTRATE JUDGE:

MAGISTRATE JUDGE SCHENKIER

TO: (Name and address of Defendant)

Registered Agent
Massachusetts Institute of Technology
77 Massachusetts Avenue
Cambridge, MA 02139-4307**YOU ARE HEREBY SUMMONED** and required to serve upon PLAINTIFF'S ATTORNEY (name and address)William A. Streff, Jr.
Kirkland & Ellis LLP
200 East Randolph Drive
Chicago, Illinois 60601
Telephone: (312)861-2000

an answer to the complaint which is herewith served upon you, within 20 days after service of this summons upon you, exclusive of the day of service. If you fail to do so, judgment by default will be taken against you for the relief demanded in the complaint. You must also file your answer with the Clerk of this Court within a reasonable period of time after service.

MICHAEL W. DOBBINS, CLERK

(By) DEPUTY CLERK

MAR 14 2005

DATE

AFFIDAVIT OF SERVICE

State of Illinois

County of

U.S.D.C. Court

Case Number: 05C1481

Plaintiff:

HARMAN INTERNATIONAL INDUSTRIES, INC.

vs.

Defendant:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

For:

HATFIELD PROCESS SERVICES

1669 Jefferson

Kansas City, MO 64108

Received by HATFIELD PROCESS SERVICES on the 14th day of March, 2005 at 9:57 am to be served on **MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 77 MASSACHUSETTS AVENUE CAMBRIDGE, MA 02139-4307.**

I, James Campbell, being duly sworn, depose and say that on the **14th day of March, 2005 at 4:35 pm, I:**

Served the within named corporation by delivering a true copy of the **SUMMONS IN A CIVIL CASE AND COMPLAINT FOR DECLARATION OF NON-INFRINGEMENT, INVALIDITY, AND UNENFORCEABILITY OF U.S. PATENT NO.5,177, 685 WITH EXHIBITS(A-D)** with the date and hour of service endorsed thereon by me to John S. Marshall as the Registered Agent for above company authorized to accept service on behalf of within named corporation and compliance with state statutes.

Description of Person Served: Age: 60, Sex: M, Race/Skin Color: White, Height: 5'10, Weight: 190, Hair: Gray, Glasses: N

I certify that I am over the age of 18 and have no interest in the above action.

Subscribed and Sworn to before me on the 15th day of March, 2005 by the affiant who is personally known to me.


NOTARY PUBLIC



MARIA BARROS
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 21, 2010


James Campbell
Process Server/ Constable

HATFIELD PROCESS SERVICES
1669 Jefferson
Kansas City, MO 64108
(816) 842-9800

Our Job Serial Number: 2005000971
Ref: 2005002836
Service Fee: _____

FILED
MAR 22 2005
MAR 22 2005
MICHAEL W. DOBBINS
CLERK, U.S. DISTRICT COURT



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Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
Division.

Todd TROST, et. al Plaintiff,
v.

Jason BAUER, & Azuradisc, Inc., Defendants.
No. 01 C 2038.

July 24, 2001.

MEMORANDUM AND OPINION

HIBBLER, District J.

***1** This Court has before it Defendants' Motion to Dismiss or Transfer for Lack of Jurisdiction and Improper Venue (doc. # 4). Plaintiffs brought their Declaratory Judgment Action claiming that they have not infringed and are not infringing on several of Defendants' patents. Plaintiffs claim this Court has personal jurisdiction over Defendants by their presence in this district, the operation of a website in this district, and sending infringement letters to Plaintiff in this District. Plaintiffs also claim that there is an actual case or controversy between the parties because the aforementioned letters placed them in reasonable apprehension of impending litigation.

Defendants claim lack of personal jurisdiction over Jason Bauer and Azuradisc, lack of subject matter jurisdiction and improper venue pursuant to Rules 12(b)(2), (b)(1), and (b)(3), of the Federal Rules of Civil Procedure. For the reasons set forth herein, Defendants' Motion to Dismiss for Lack of Jurisdiction (doc # 4) is GRANTED. Defendants' Motion to Transfer for Improper Venue (doc. # 4) is dismissed as moot.

BACKGROUND

Plaintiff Todd Trost is an Illinois resident and the remaining three Plaintiffs, Damaged Disc Repair, Inc. ("Damaged Disk"), Orland Video West, Inc. ("Video West") and Specialty Store Services, Inc. ("Specialty Store") are Illinois corporations, doing business in the

state (collectively known as "Plaintiffs"). Defendant Jason Bauer ("Bauer") is an Arizona resident and Defendant Azuradisc, Inc. ("Azuradisc") is an Arizona corporation, with its principal place of business in Arizona (collectively known as "Defendants").

In late 1997, Marshall Weinstein, a principal of Plaintiff Specialty Store, telephoned Bauer regarding advertising Defendants' CD scratch removal machines in Weinstein's trade magazine. The machines are used to repair and remove scratches on CD's, DVD's and other such discs. [FN1] Eventually Weinstein visited Bauer's home in Arizona, inspected the machines, discussed the engineering details, and read the business plans. Sometime thereafter, Weinstein returned to his home in Illinois and began to make his own disc repair machines, selling them through Specialty Store.

[FN1]. Defendants' machines are currently covered by three different patents.

On January 23, 2001, Defendants sent Plaintiffs correspondence stating that they may be in violation of the patents involving the use, manufacture, and distribution of Plaintiffs' compact disc repair machines. Plaintiffs' retained counsel and sent a letter of inquiry to Defendants' counsel on February 14, 2001, to which they allegedly received no response. On March 22, 2001 Plaintiffs filed suit in this Court.

LEGAL STANDARDS

A. Subject Matter Jurisdiction

The Federal Rules of Civil Procedure provide for dismissal of claims when the district court lacks subject matter jurisdiction. Fed.R.Civ.P. 12(b)(1). On a motion to dismiss for lack of subject matter jurisdiction, the plaintiff bears the burden of proving facts sufficient to establish personal jurisdiction. Michael J. Neuman & Assoc. v. Florabelle Flowers, Inc. 15 F.3d 721, 723-24 (7th Cir.1994). Subject-matter jurisdiction generally should be considered before personal jurisdiction, even though a district court may dismiss for lack of personal jurisdiction without determining whether subject-matter jurisdiction exists. Central States, Southeast and Southwest Areas Pension Fund v. Reimer Express World Corp., 230 F.3d 934, 939 n. 2 (7th Cir.2000); Ruhrgas AG v. Marathon Oil Co., 526 U.S. 574, 578, 587-88 (1999).

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*2 In cases involving the Declaratory Judgment Act, 28 U.S.C. § 201, a federal court can issue a declaratory judgment only if an "actual controversy" exists at the time the suit was filed. International Harvester Co. v. Deere & Co., 623 F.2d 1207, 1210 (7th Cir.1980). To demonstrate an actual controversy, Plaintiffs must show (1) that they have acted, or are prepared to act in a way that could constitute infringement, and (2) Defendants' conduct creates a reasonable apprehension of suit on Plaintiffs' part. Serco Services Co., L.P. v. Kelley Co., Inc., 51 F.3d 1037, 1038 (Fed.Cir.1995). It is clear that this Court possesses discretion in determining whether and when to entertain an action under the Declaratory Judgment Act, even when the suit otherwise satisfies subject matter jurisdictional prerequisites. Wilton v. Seven Falls Co., 515 U.S. 277, 282-83 (1995) (citing Brillhart v. Excess Ins. Co. of America, 316 U.S. 491 (1942)).

B. Personal Jurisdiction

The Federal Rules of Civil Procedure provide for dismissal of claims when the district court lacks personal jurisdiction. Fed.R.Civ.P. 12(b)(2). In a case based on diversity of citizenship, a federal district court in Illinois may exercise personal jurisdiction over a non-resident defendant, only if an Illinois state court would have jurisdiction. Michael J. Neuman & Assoc. v. Florabelle Flowers, Inc., 15 F.3d 721, 723-24 (7th Cir.1994); Dehmlow v. Austin Fireworks, 963 F.2d 941, 945 (7th Cir.1992). When reviewing a motion to dismiss, this Court takes all jurisdictional allegations in the complaint as true, unless controverted by Defendants' affidavits. Turnock v. Cope, 816 F.2d 332, 333 (7th Cir.1987). Any conflicts between the parties' affidavits must be resolved in Plaintiffs' favor. *Id.* To survive a motion to dismiss, Plaintiffs have the burden of making a prima facie case for personal jurisdiction. RAR, Inc. v. Turner Diesel, Ltd., 107 F.3d 1272, 1276 (7th Cir.1997); IDS Life Ins. Co. v. SunAmerica, Inc., 958 F.Supp. 1258, 1264 (N.D.Ill.1997), *vacated in part*, 136 F.3d 537 (7th Cir.1998) (In order to survive a defendants' motion to dismiss, the plaintiff must demonstrate that Illinois law permits jurisdiction and that the exercise of jurisdiction will not offend due process).

Federal Circuit law is controlling as to issues that are unique to patent law. "A procedural issue that is not itself a substantive patent law issue is ... governed by Federal Circuit law if it bears an essential relationship to matters committed to [the Federal Circuit's] exclusive jurisdiction by statute, or if it

clearly implicates the jurisprudential responsibilities of [the Federal Circuit] in a field within its exclusive jurisdiction." McCook Metals L.L.C., v. Alcoa Inc., 192 F.R.D. 242, 251 (N.D.Ill.2000) (quoting In re Spalding Sports Worldwide, Inc., 203 F.3d 800, 803 (Fed.Cir.2000)). Additionally, "[f]or procedural issues in a patent case that are not unique to patent law, courts apply the law of the circuit in which the district court sits." *Id.* In determining whether jurisdiction exists over an out of state defendant, this Court must defer to the law of the Federal Circuit with regard to the federal constitutional due process analysis of the defendant's contact with the forum state. Graphic Controls Corp. v. Utah Medical Products, Inc., 149 F.3d 1382, 1386 (Fed.Cir.1998). However, this Court must look to relevant Illinois state and federal law in interpreting the meaning of Illinois' long-arm statute. *Id.*

1. Illinois Long-Arm Statute

*3 This Court must determine whether Plaintiffs have cleared the three hurdles to personal jurisdiction, state statutory law; state constitutional law; and federal constitutional law, when making its determination. Important to this Court's analysis is Illinois' long-arm statute governing the jurisdiction of courts which provides that an Illinois court 'may ... exercise jurisdiction on any ... basis now or hereafter permitted by the Illinois Constitution and the Constitution of the United States.' 735 ILCS 5/2-209(c). The Seventh Circuit has explained that the Illinois long-arm statute is coextensive with federal due process requirements such that

if the contacts between the defendant and Illinois are sufficient to satisfy the requirements of due process, then the requirements of both the Illinois long-arm statute and the United States constitution have been met, and no other inquiry is necessary.

Klump v. Duffus, 71 F.3d 1368, 1371 (7th Cir.1995). Therefore, because the Illinois long-arm statute authorizes personal jurisdiction to the extent of constitutional limits, the three inquiries collapse into two, one state and one federal. RAR, 107 F.3d at 1276. If jurisdiction is improper under the Illinois or United States' Constitutions, then this Court cannot exercise jurisdiction over Defendants. Jamik, Inc. v. Days Inn of Mount Laurel, 74 F.Supp.2d 818, 821 (N.D.Ill.1999).

2. Federal Due Process

The Federal Circuit, like the Seventh Circuit applies the " 'minimum contacts' standard of International Shoe Co. v. Washington, 326 U.S. 310 (1945)]and its progeny to questions of personal jurisdiction in federal question cases, such as those arising under the

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patent laws." Akro Corp. v. Luker, 45 F.3d 1541, 1545 (Fed.Cir.1995) (citing cases). Under *International Shoe*, federal due process requires Defendants to have "certain minimum contacts with [Illinois] such that the maintenance of the suit does not offend 'traditional notions of fair play and substantial justice.'" International Shoe, 326 U.S. at 316. Whether a defendant has maintained minimum contacts in each particular case is dependent on whether the plaintiff asserts specific or general jurisdiction. Specific jurisdiction refers to jurisdiction over a defendant in a suit "arising out of or related to the defendant's contacts with the forum." Helicopteros Nacionales de Colombia, S.A. v. Hall, 466 U.S. 408, 414 n. 8 (1984). General jurisdiction is for suits neither arising out of nor related to the defendant's contacts, and is permitted only where the defendant has "continuous and systematic general business contacts" with the forum state. Id. at 416.

a. Specific Jurisdiction

To determine whether specific jurisdiction exists, this Court must decide whether Defendants have "purposefully established minimum contacts within the forum state" and whether those contacts would make personal jurisdiction reasonable and fair under the circumstances. Burger King Corp. v. Rudzewicz, 471 U.S. 462, 476-77 (1985). This Court's first inquiry is whether Defendants could reasonably anticipate being haled into court in this state. Id. at 474-75. To answer this question, this Court must determine if Defendants purposefully availed themselves of the privilege of conducting activities in Illinois. Id. This Court cannot exercise personal jurisdiction over Defendants "solely as a result of random, fortuitous, or attenuated contacts." Id. Next, this Court must consider whether exercising personal jurisdiction over Defendants is reasonable such that it comports with traditional notions of fair play and substantial justice. This Court must consider the following five factors, (1) the burden on the defendant of litigating in the forum; (2) the interests of the forum; (3) the plaintiff's interest in obtaining relief; (4) the interstate judicial system's interest in obtaining the most efficient resolution of controversies; and (5) the shared interests of the states in furthering fundamental substantive policies. Once minimum contacts have been established, "often the interest of the plaintiff and the forum in the exercise of jurisdiction will justify even the serious burdens placed on the alien defendant." Id.

b. General Jurisdiction

*4 General jurisdiction arises when the non-resident defendant has "continuous and systematic general

business contacts" with the forum state. RAR, 107 F.3d at 1277 (citing Helicopteros Nacionales, 466 U.S. at 416). This Court must look to Defendants' additional contacts with the forum state beyond those related to the action being brought against them to determine whether general personal jurisdiction exists. Dehmlow v. Austin Fireworks, 963 F.2d 941, 947 n. 6 (7th Cir.1992). However, Defendants' actions must be intentional, substantial, and continuous, rather than inadvertent, trivial, or sporadic. Asset Allocation & Mgmt. Co. v. Western Employers Ins. Co., 892 F.2d 566, 570 (7th Cir.1989).

ANALYSIS

A. Lack of Subject Matter Jurisdiction

Plaintiffs assert that they have alleged sufficient facts to establish subject matter jurisdiction for their Declaratory Judgment Action because an actual controversy exists between the parties, and Defendants' actions placed them in a reasonable apprehension that they would be sued for infringement. Defendants claim that no actual controversy exists because the letters sent to Plaintiffs were mere inquiries concerning Plaintiffs' possible infringement. Based on the facts presented, this Court declines to exercise jurisdiction over the Declaratory Judgment claim even though an actual controversy exists.

This Court has jurisdiction over this cause of action in accordance with the Declaratory Judgment Act. "A declaratory judgment action affords a measure of relief to the potential infringer who is under the shadow of threatened infringement litigation." Serco Srvs. Co., L.P. v. Kelley Co., Inc., 51 F.3d 1037, 1038 (Fed.Cir.1995). Under the Act, an actual controversy between the parties must exist for this Court to exercise jurisdiction over the Declaratory Judgment claim. "[T]he presence of an 'actual controversy' within the meaning of the statute depends on whether the facts alleged, under all the circumstances, show that there is a substantial controversy, between parties having adverse legal interests, of sufficient immediacy and reality to warrant the issuance of a declaratory judgment." EMC Corp. v. Norand Corp., 89 F.3d 807, 810 (Fed.Cir.1996) (citations omitted). However, should this Court determine that an actual controversy exists, it is entirely within its discretion to decline exercising jurisdiction. Id. This Court should consider whether Plaintiffs actually produced an allegedly infringing product and whether Defendants' conduct actually created an objectively reasonable apprehension of suit on Plaintiffs' part. Id. at 811.

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Plaintiffs claim that they were placed in reasonable apprehension of an infringement suit based on letters dated January 23, 2001. (Pl.'s Exs. 1 and 2.) Plaintiffs allege that Defendants threatened to sue for them patent infringement. Defendants counter that the letters were not threatening and were sent merely to inquire into Plaintiffs' actions. Based on the language of the two letters, this Court finds that an actual controversy existed. Plaintiffs quote specific language from the letters in their reply that they claim placed in them in apprehension of an infringement suit. In reading Defendants' letter to Plaintiffs, it is clear that Defendants state that in the event that Plaintiffs infringe the patents, Defendants intend to take all steps legally permitted. [\[FN2\]](#) The Federal Circuit has made it clear that "where all that is present is negotiation unaccompanied by threats of legal action, the setting is not sufficiently adverse to create a justiciable controversy. That principle, however, is inapplicable in a case such as this one, where the patentee has made explicit references to the prospect of initiating legal action." [EMC Corp., 89 F.3d at 812](#). Accordingly, this Court is satisfied that an actual controversy exists under the Declaratory Judgment Act.

[FN2](#). Specifically, Defendants' letter states, "[p]lease be advised that any infringement of these patents is a matter of grave concern to us. We intend to take all steps legally permitted to enforce our clients' intellectual property. These steps may include, when necessary, resorting to litigation to ask the court's help in obtaining all monetary and injunctive relief to which our clients are entitled. In fact, one such lawsuit is in progress now, and if you do not cooperate, your firm may be next." (Pls.' Exs. 1 & 2, Letters from Defendants to Plaintiff Trost and Weinstein of January 23, 2001, at 1.)

[*5](#) However, even though this Court has found an actual controversy, an exercise of jurisdiction is not required and will only be reversed upon a finding of an abuse of discretion. *Id.* In fact, "as long as [this Court] acts in accordance with the purposes of the Declaratory Judgment Act and the principles of sound judicial administration, [it] has broad discretion to refuse to entertain a declaratory judgment action." *Id.* at 813-14. In response to Defendants' January 23, 2001 letter, Plaintiffs sent a letter stating that they would evaluate Defendants' claims and respond to them at the end of their investigation. [\[FN3\]](#) Plaintiffs claim that Defendants

failed to respond to their letter. Less than six weeks after responding the Defendants letter, Plaintiffs filed suit. This Court may take into account whether Plaintiffs' "first-filed action is initiated in an apparent attempt to pre-empt anticipated litigation and deprive the party of its choice of forum." [Solo Cup Co., v. Fort James Corp., No. 99 C 4724, 1999 WL 1140885, at *1 \(N.D.Ill. Nov. 29, 1999\)](#) (quoting [KPR Inc. v. C & F Packing Co., Inc., 30 U.S.P.Q.2d 1320, 1323 \(N.D.Tex.1993\)](#)). In this case, this Court finds that Plaintiffs filed this action for declaratory judgment solely for forum shopping purposes. Plaintiffs assert that they brought this anticipatory cause of action because they had a reasonable apprehension of being sued for patent infringement. While it is true that the purpose of the Act is to alleviate Plaintiffs' necessity of waiting indefinitely for an infringement action to be filed, [KPR, 30 U.S.P.Q.2d at 1323](#), the circumstances of this litigation act as a mitigation to Plaintiffs' apprehension. Plaintiffs claim that Defendants' previous suits against other competitors is evidence of its intent to sue. Yet "the fact that [Defendants have] recently filed infringement suits against other [competitors] based upon the same patents and equipment at issue in this case should also have been an indication to [Plaintiffs] that [they] would not be forced to wait indefinitely for [Defendants] to file suit." *Id.* The facts in this case are clear, although Plaintiffs assured Defendants that a review of the issues would be done and the results of the review would be forwarded to Defendants, Plaintiffs instead filed suit less than six weeks after sending its February 14, 2001 letter. [\[FN4\]](#) Accordingly, based upon the facts presented, this Court finds that even though a real controversy exists, Plaintiffs raced to the courthouse to Defendants' detriment. [Solo Cup, 1999 WL 1140885, at *2](#). Therefore, this Court declines to exercise subject matter jurisdiction over the Declaratory Judgment claim.

[FN3](#). In response the Defendants' letter Plaintiffs wrote, "[w]e are presently evaluating the issues you have raised and will respond to them as soon as we complete our evaluation." (Pls.'s Ex. 3, Letter from Plaintiffs to Defendants of February 14, 2001.)

[FN4](#). This Court anticipates that Plaintiffs will claim that in their February 14th letter, they requested further information from Defendants and when Defendants failed to reply they filed suit. However, nowhere in the letter do Plaintiffs inform Defendants

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that failure to submit the additional information will result in an anticipatory lawsuit.

B. Lack of Personal Jurisdiction

Defendants also argue that Plaintiffs have failed to demonstrate that personal jurisdiction exists. Defendants claim that they are not doing business in Illinois, their website does not specifically target Illinois or its residents, and the infringement letters do not establish minimum contacts such that this Court should exercise personal jurisdiction over the Defendants. Plaintiffs counter that this Court should exercise personal jurisdiction over Defendants based upon the infringement letters and solicitation of sales in Illinois. After careful review of the evidence and considering all well-plead facts in Plaintiffs' favor, this Court finds that Plaintiffs have failed to meet their burden of demonstrating sufficient minimum contacts which necessitate this Court's exercise of personal jurisdiction.

*6 Plaintiffs' burden is to establish that jurisdiction exists under the Illinois long-arm statute. Inamed Development Co. v. Kuzmak, 249 F.3d 1356, 1360 (Fed.Cir.2001). Illinois' long-arm statute permits the exercise of jurisdiction over claims which arise out of the defendant's transaction of business, or commission of a tort in Illinois, as well as, performance of a contract substantially connected with Illinois. 735 ILCS 5/2-209(a)(1) and (2). The "transaction of business test" may be satisfied by an isolated act, as long as, Plaintiffs' claims arise out of that act. Jacobs/Kahan & Co. v. Marsh, 740 F.2d 587, 591 (7th Cir.1984). Additionally, Illinois state courts have jurisdiction over a non-resident defendant "doing business" in the state. 735 ILCS 5/2-209(b). A corporation is "doing business" in Illinois if it engages in regular activities in Illinois, "not occasionally or casually, but with a fair measure of permanence and continuity." Michael J. Neuman, 15 F.3d at 724 (citations and quotations omitted). "The decision as to whether a corporation's in-state activities are sufficiently permanent and continuous to qualify as 'doing business' is to be made on a case-by-case basis and depends on the unique situation in particular case." IDS, 958 F.Supp. At 1265. The Seventh Circuit has defined the concept of "doing business" as "those nonresident businesses that are so like resident businesses, insofar as the benefits they derive from state services are concerned, that it would give them an undeserved competitive advantage if they could escape having to defend their actions in the local courts." IDS, 136 F.3d at 540-41.

Should Plaintiffs satisfy their burden of demonstrating minimum contacts, then Defendants bear the burden of demonstrating that this Court's exercise of jurisdiction will not offend due process. Inamed, 249 F.3d at 1360. Due process measures the limits of personal jurisdiction by the strength of the relationship between the defendant and the forum state. The due process inquiry encompasses two parts, minimum contacts and fair play and substantial justice. First, the defendant must have 'purposely established 'minimum contacts' in the forum State.'" Burger King Corp. v. Rudzewicz, 471 U.S. 462, 475 (1985). Second, the exercise of jurisdiction over the defendant must not offend traditional notions of fair play and substantial justice. International Shoe Co. v. Washington, 326 U.S. 310, 316 (1945).

The required minimum contacts are established in one of two ways, when defendant has sufficient "contacts of a continuous and systematic nature," with the forum, Helicopteros Nacionales De Columbia, S.A. v. Hall, 466 U.S. 408, 416 (1984), or the cause of action before the court relates to, or arises out of, defendant's contacts with that forum state. Shaffer v. Heitner, 433 U.S. 186, 204 (1977). These minimum contacts must "result from actions by the defendant himself that create a 'substantial connection' with the forum State." Burger King, 471 U.S. at 475. The well-settled rule is that the defendant must have "purposefully availed" himself of the privilege of conducting activities within the forum state such that he should "reasonably anticipate being haled into court there." World-Wide Volkswagen Corp. v. Woodson, 444 U.S. 286, 297 (1980). Defendants may not be haled into a jurisdiction "solely as a result of random, fortuitous or attenuated contacts" or stem from the "unilateral activity of another party or third person." Burger King, 471 U.S. at 475.

*7 A defendant may be subject to either specific or general jurisdiction under the "minimum contacts" test. LSI Indus. v. Hubbell Lighting, 232 F.3d 1369, 1375 (Fed.Cir.2000). Specific jurisdiction exists if Defendants purposefully directed their activities at Illinois residents, Plaintiffs' claims arise out of or are related to those activities, and the assertion of personal jurisdiction is reasonable and fair. Hollyanne v. TFT, Inc., 199 F.3d 1304, 1307-08 (Fed.Cir.1999); RAR, 107 F.3d at 1277. General jurisdiction exists when a defendant maintains "continuous and systematic" contacts with the forum state even when the cause of action has no relation to those contacts. It is Defendants' conduct in relation to Illinois, not the unilateral actions of Plaintiffs, which

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determine jurisdiction. Dehmow v. Austin Fireworks, 963 F.2d 941, 946 (7th Cir.1992). In this case, Plaintiffs have failed to allege either specific or general jurisdiction, therefore, this Court will analyze their claims under both options.

1. Personal Jurisdiction Over Jason Bauer

Bauer claims that this Court lacks personal jurisdiction over him as he has had no contact whatsoever with the forum state. Plaintiffs counter that Illinois has personal jurisdiction over Bauer for two reasons: (1) the letter sent to Plaintiffs was sent on behalf of Bauer and Azuradisc, and (2) Bauer's sole proprietorship, CD Saver, had dealings in Illinois between 1997 and 1999, before Azuradisc was incorporated. In light of the facts before it, this Court finds that it lacks personal jurisdiction over Defendant Bauer.

In order for this Court to exercise personal jurisdiction over Bauer, Plaintiffs must demonstrate that jurisdiction is proper under the Illinois long-arm statute and personal jurisdiction satisfies constitutional standards of due process and fairness. First, The Illinois Supreme Court has interpreted the Illinois long-arm statute as being more limited than due process would allow in some situations. One such limitation is the fiduciary shield doctrine. The fiduciary shield doctrine prevents personal jurisdiction over an individual whose contacts with Illinois are solely the result of acts as a representative or fiduciary of the corporation. Plastic Film Corp. v. Unipac, Inc., 128 F.Supp.2d 1143, 1146 (N.D.Ill.2001). The fiduciary shield doctrine will not prevent jurisdiction over an individual where the corporation is the individual's alter ego, however, just because an individual is a member of management or holds controlling positions in a corporation does not nullify the protection of the fiduciary shield. Kula v. J.K. Schofield & Co., 668 F.Supp. 1126, 1129 (N.D.Ill.1987). This is because Illinois recognizes that corporate officers, directors, and shareholders are separate and distinct from the corporation. *Id.* Second, in determining whether the defendant purposefully availed itself of a particular forum for purposes of the Fourteenth Amendment, courts in this circuit have considered whether the defendant solicited the transaction in question within the proposed forum. Federated Rural Elec. Ins. Corp. v. Inland Power and Light Co., 18 F.3d 389, 394 (7th Cir.1994). The handful of letters and phone calls that passed between Plaintiffs and Bauer is not enough to clear the hurdle. Helicopteros Nacionales, 466 U.S. at 416; Young v. Colgate-Palmolive Co., 790 F.2d 567, 570 (7th Cir.1986); Lakeside Bridge & Steel Co.

v. Mountain State Construction Co., 597 F.2d 596, 598, 604 (7th Cir.1979); Madison Consulting Group v. South Carolina, 752 F.2d 1193, 1203 n. 18 (7th Cir.1985) (dictum). This is true because even though sending an infringement letter falls within the ambit of the long-arm statute, additional contacts are necessary to satisfy due process. E.J. McGowan, Inc. v. Biotechnologies, Inc., 736 F.Supp. 808, 812 (N.D.Ill.1990); International Honeycomb Corp. v. Transtech Service Network, Inc., 742 F.Supp. 1011, 1013 (N.D.Ill.1990). Sending the infringement letter to a plaintiff in Illinois does not confer personal jurisdiction over a non-resident defendant. Publications Intern. v. Simon & Schuster, Inc., 763 F.Supp. 309, 313 n. 4 (N.D.Ill.1991) (citing E.J. McGowan, 736 F.Supp. at 812.) In fact, the Federal Circuit has recently stated that "the sending of an infringement letter, without more, is insufficient to satisfy the requirements of due process when exercising jurisdiction over an out-of-state patentee." Inamed, 249 F.3d at 1361. Furthermore, courts in this circuit have frequently disagreed as to whether a defendant's small volume of sales in the forum state is sufficient to establish jurisdiction. A review of the cases in which a defendant's small volume of sales within the forum state subjected it to the exercise of personal jurisdiction suggests that courts exercise jurisdiction only where the defendant also engaged in the active solicitation of business or made direct advertisements targeting the forum state. Michael J. Neuman, 15 F.3d at 725; Kavo America Corp. v. J.F. Jelenko & Co., No. 00 C 1355, 2000 WL 715602, at *4 (N.D. Ill. June 2, 2000); Deere & Co. v. Howard Price Turf Equipment, Inc., No. 99 C 4169, 1999 WL 1101215, at *3 (N.D. Ill., 1999 Dec. 1, 1999); Milligan v. Soo Line R. Co., 775 F.Supp. 277, 280 (N.D.Ill.1991).

*8 Because Plaintiffs have failed to meet their burden of establishing a prima facie case of personal jurisdiction over Bauer, this Court will decline from exercising personal jurisdiction over him. It is arguable that resolving all disputed facts in Plaintiffs' favor leads this Court to the conclusion that the fiduciary shield doctrine does not apply to Bauer because he is a high-ranking corporate officer of Azuradisc, R-Five, Inc. v. Sun Tui, Ltd., No. 94 C 4100, 1995 WL 548633, at *5 (N.D.Ill. Sept. 12, 1995); Brujis v. Shaw, 876 F.Supp. 975, 980 (N.D.Ill.1995), however, little doubt exists as to whether Bauer had minimum contacts with Illinois to the extent that maintaining personal jurisdiction over him would not offend traditional notions of fair play and substantial justice. Helicopteros Nacionales, 466 U.S. at 416. Plaintiffs claim that because Bauer is the

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inventor and sole owner of the patents at issue, the letters sent to Plaintiffs were on his behalf, and the fact that he did business as CD Saver before he incorporated Azuradisc, leads to the conclusion that he has purposefully directed his activities at Illinois residents. This Court wholeheartedly disagrees with that assessment. Bauer's letters to Plaintiff are not sufficient to subject Bauer to this Court's personal jurisdiction. [Publications Intern., 763 F.Supp. at 313 n. 4](#). Furthermore, the fact that Bauer ran CD Saver as a sole proprietorship between 1997 to 1999 has no bearing on whether he should be subjected to personal jurisdiction for Azuradisc's transactions. Bauer "should have some control over--and certainly should not be surprised by--the jurisdictional consequences of [his] actions. Thus, when conducting business with a forum in one context, [Bauer] should not have to wonder whether some aggregation of other past and future forum contacts will render [him] liable to suit there." [RAR., 107 F.3d at 1278](#). Even assuming that running CD Saver could somehow subject Bauer to personal jurisdiction, Bauer has demonstrated that CD Saver and Azuradisc's combined sales made in Illinois amount to approximately 1% of those companies total sales. There is no evidence that Bauer has solicited or targeted business in Illinois on Azuradisc's behalf, and absent specific solicitation and targeting of Illinois residents, this Court is hesitant to exercise personal jurisdiction over Bauer. This is because the fact that Bauer conducted an business with an Illinois resident does not create personal jurisdiction over him. [Hot Wax, Inc. v. Stone Soap, Co., No. 97 C 6878, 1999 WL 183776, at *4 \(N.D.Ill. March 25, 1999\)](#). Plaintiffs also point to the fact that Bauer conducted a conversation with one of Plaintiff's representatives and sent information in reference to his patents. However, Plaintiffs conveniently fail to mention that it was Specialty Store's representative who initiated the phone call and visited Bauer at his Arizona home. "[C]ontacts resulting from the 'unilateral activity' of others do not count." [Red Wing Shoe Co., Inc. v. Hockerson-Halberstadt, Inc., 148 F.3d 1355, 1359 \(Fed.Cir.1998\)](#) (citing [Burger King, 471 U.S. at 475 & n. 17](#)). These facts are not sufficient to sustain jurisdiction over Bauer based on the well-established notion of minimum contacts under the *International Shoe* standard. In fact, based on the facts presented, Bauer's contact with Illinois falls within the realm of minuscule rather than minimum contacts.

*9 Finally, there can be no doubt that Bauer did not have continuous and systematic contact with Illinois. Plaintiffs point to the fact that between 1997 and

1999, Bauer ran CD Saver and solicited business from Illinois residents during that time. (Pls.'s Ex. 5 at 2 ¶ 1). However, a review of Plaintiffs' exhibits and Bauer's affidavit do not support the allegation that Bauer did business with Illinois residents while he ran CD Saver. Even if Plaintiffs could establish that Bauer did solicit Illinois residents, the fact that those solicitations ended two years prior to suit negates any continuous and systematic contact Bauer may have had with Illinois. [Rokeby-Johnson v. Derek Bryant Ins., 594 N.E.2d 1190, 1196-97 \(Ill.App.Ct.1992\)](#); [Reeves v. Baltimore & Ohio R.R. Co., 526 N.E.2d 404 \(Ill.App.Ct.1992\)](#).

2. Personal Jurisdiction Over Azuradisc

Azuradisc argues that this Court lacks personal jurisdiction over it because the volume of sales to Illinois consists of a very small percentage of its total sales. Plaintiffs counter that because Azuradisc maintains a website, has distributed flyers and postcards as solicitations, and sold more than \$25,000 in merchandise, this Court should exercise personal jurisdiction over the corporation. [\[FN5\]](#) This Court finds that it does not have jurisdiction over Azuradisc because its contacts with Illinois are insufficient.

[FN5](#). Plaintiffs assert that Azuradisc is large enough to make sales in more than twenty countries around the world and sustain a branch office in New Zealand. While this fact may submit Azuradisc to personal jurisdiction in those countries, it has no bearing on whether this Court may exercise personal jurisdiction over Azuradisc.

Azuradisc contends that its connection with Illinois is of such a minimal extent that it should not reasonably have anticipated being haled into court. This Court must make two inquiries in determining whether jurisdiction exists over an out-of-state defendant, whether Illinois' long-arm statute permits the assertion of jurisdiction and whether assertion of personal jurisdiction violates due process. [Graphic Controls Corp. v. Utah Medical Products, 149 F.3d 1382, 1385 \(Fed.Cir.1998\)](#). As has been discussed, because this is a patent case, this Court must rely on the law of the Federal Circuit in its due process analysis of Defendants' contact with Illinois. [Akro Corp. v. Luker, 45 F.3d 1541, 1543-44 \(Fed.Cir.1995\)](#). "However, in interpreting the meaning of state long-arm statutes, [the Federal Circuit] elect[s] to defer to the interpretations of the relevant state and federal courts, including their determinations regarding whether or not such statutes are intended to reach to the limit of federal due

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process." [Graphic Controls](#), 149 F.3d at 1386.

a. Azuradisc's volume of sales

Pursuant to the Illinois long-arm statute, a defendant is subject to jurisdiction of its courts if the defendant conducted the transaction of any business within the state. [735 ILCS 5/2-209\(a\)\(1\)](#). Where jurisdiction is predicated upon subsection (a), only causes of action arising from the enumerated acts may be asserted against a nonresident defendant. [735 ILCS 5/2-209\(f\)](#). In this case, Azuradisc points to its small percentage of sales, roughly one percent, in the state to support its claim that it cannot be subject to this Court's jurisdiction. "However, no case has yet held that revenue derived from this State is the dispositive variable in resolving whether *in personam* jurisdiction may be asserted against a foreign corporation." [Hulsey v. Scheidt](#), 630 N.E.2d 905, 909 (Ill.App.Ct.1994). See also [Rokeby-Johnson v. Derek Bryant Ins. Brokers, Ltd.](#), 594 N.E.2d 1190 (Ill.App.Ct.1992) (where the court found that the defendant may have earned \$5 million in Illinois of no consequence to its analysis of whether the defendant was "doing business" in the state); [Kadala v. Cunard Lines](#), 589 N.E.2d 802 (Ill.App. Ct. 1992) (where the court held that substantial revenues earned from extensive advertising in Illinois does not alone submit a foreign corporation to jurisdiction under the "doing business" test); [Dal Ponte v. Northern Manitoba Native Lodges, Inc.](#), 581 N.E.2d 329 (Ill.App.Ct.1991) (where the court declined to find personal jurisdiction over a Canadian corporation which solicited customers at Illinois fishing shows and accepted reservations because its relationship with the state was occasional and casual); [Radosta v. Devil's Head Ski Lodge](#), 526 N.E.2d 561 (Ill.App.Ct.1988) (where the court found that defendant's advertising in Illinois, maintaining an Illinois phone number, selling its services through local ski shops, purchasing billboard space in Illinois, and participating in annual exhibitions in Illinois were insufficient because defendant's presence in the state was occasional). "Rather than emphasizing the amount of the financial benefit it derives from the consumers of Illinois, the cases seem to indicate that the key consideration is the corporation's temporal relationship with the State." *Id.*

*10 In this case, there can be no doubt that Azuradisc has no temporal relationship with Illinois. Azuradisc is not licensed to do business in Illinois, nor does it have a registered agent in the state. Azuradisc does not own property or occupy any real or personal property in Illinois. Azuradisc does not maintain an Illinois telephone number. Finally,

Plaintiffs have failed to demonstrate that the small percentage of Azuradisc's sales were made as the result of a continual rather than occasional transaction of business such that Azuradisc was "doing business" in the state. [Cook Assoc., Inc. v. Lexington United Corp.](#), 429 N.E.2d 847, 852-53 (Ill.1981).

Plaintiffs also rely on the fact that Azuradisc advertised in Illinois to support their contention that personal jurisdiction exists. Plaintiffs point to 7,625 flyers which were mailed to Illinois in a one year period. [FN6] However, these mailings are insufficient to constitute the transaction of business in Illinois. This is because advertising and revenue alone are not a sufficient basis for the exercise of long-arm jurisdiction. [Kadala](#), 589 N.E. 2d at 807. This is because in this state, a significant distinction between "the transaction of business *in* Illinois and the transaction of business *with* an Illinois [resident]" exists. *Id.* (citations omitted).

[FN6](#). Between January 2000 and January 2001, Azuradisc sent 176,553 mailings to all fifty states, the District of Columbia, Guam and Puerto Rico. These mailings were sent by a direct mailing service company at Azuradisc's request.

[I]f the mere payment of money, shipment of goods into, or advertisement in Illinois were sufficient to confer long arm jurisdiction it would follow that the very existence of a business relationship with an Illinois resident would automatically sustain Illinois jurisdiction. It is clear that no federal or state court would confer such a broad grant of personal jurisdiction.

Id. (quoting [Braasch v. Vail Assoc., Inc.](#), 370 F.Supp. 809, 814 (N.D.Ill.1973)). "At best, advertising amounts only to solicitation, which ...is insufficient to submit a defendant to jurisdiction under the 'doing business' test postulated under section 2-209 of the long-arm statute." *Id.* (citing [Radosta](#), 526 N.E.2d 561).

The fact that a defendant who solicits business in the State derives revenue from the State would seem to be implicit, even though not expressly discussed in the cases, as a natural result [of] successful solicitation, and not an independent factor upon which to determine that a non-resident corporation is "doing business" in the State. Moreover, defendant here did not receive any revenues in this state; all payments were received in its [Arizona] office. Accordingly, [this Court holds] that defendant is not "doing business" in

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Illinois so as to be amenable to [personal] jurisdiction.

[Kadala 589 N.E.2d at 810.](#)

b. Azuradisc's Internet presence

Defendants argue that their website, which is accessible in Illinois, is also not sufficient to establish jurisdiction. They assert the Azuradisc website is a passive website which merely posts information over the Internet. More specifically, Azuradisc's website does not specifically invite Illinois residents to transact business with Azuradisc, instead, the website merely presents a general advertisement which is accessible worldwide. Plaintiff argues that because the website includes detailed descriptions of products and services, sales information, price lists, and toll free numbers, Defendants have sufficiently engaged with Illinois residents to warrant the exercise of jurisdiction.

*11 It is well-settled that "no court has ever held that an Internet advertisement alone is sufficient to subject a party to jurisdiction in another state. In each case where personal jurisdiction was exercised, there [was] something more to indicate that the defendant purposefully (albeit electronically) directed his activity in a substantial way to the forum state." [Vitullo v. Velocity Powerboats, Inc., No. 97 C 8745, 1998 WL 246152, at *5 \(N.D. Ill. April 27, 1998\)](#) (quoting [Panavision Int'l, L.P. v. Toeppen, 141 F.3d 1316, 1321 \(9th Cir.1998\)](#)) (internal quotations omitted.) The general framework of decisions regarding personal jurisdiction as the result of an Internet site is based largely on a sliding scale approach that divides Internet activities into three categories. The first category consists of situations in which a defendant clearly does business over the Internet such that the websites "are clearly interactive, allowing the transaction of business between the end user and the website's owner." [Euromarket Designs, Inc. v. Crate & Barrel, Ltd., 96 F.Supp.2d 824, 837 \(N.D.Ill.2000\)](#). This Court has personal jurisdiction over transactions such as these because the defendant "enters into contracts with residents of a foreign jurisdiction that involve the knowing and repeated transmission of computer files over the Internet." [Zippo Manufacturing Co. v. Zippo Dot Com, Inc., 952 F.Supp. 1119, 1123-24 \(W.D.Pa.1997\)](#). The second category is a hybrid category, in which the websites are "somewhat interactive, however, not to the extent of the first category." [Euromarket, 96 F.Supp.2d at 838](#) (citing [Maritz, Inc. v. Cybergold, Inc., 947 F.Supp. 1328 \(E.D.Mo.1996\)](#)). This is because the website "is occupied by interactive Web sites where a user can

exchange information with the host computer. In these cases, the exercise of jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the Web site." [Zippo](#), at 1124. Finally, the third category deals with passive websites "where a defendant has simply posted information on an Internet Web site which is accessible to users in foreign jurisdictions. A passive Web site that does little more than make information available to those who are interested in it is not grounds for the exercise of personal jurisdiction." *Id.*

After considering Azuradisc's website under the sliding scale approach, it is clear that it is insufficient to subject it to this Court's personal jurisdiction. Plaintiffs claim that Azuradisc's website contains detailed product and service descriptions with toll-free numbers and advertising. The site also allows prospective clients to contact Azuradisc via e-mail. However, Plaintiffs admit that no orders can be placed directly from the website. In cases where a user can exchange information with the host computer, "the exercise of jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the Web site." [Zippo](#), 962 F.Supp. at 1124. In this case, Plaintiffs have failed 'to allege facts to support a reasonable inference that electronic mail communications were made with Illinois residents, or that the communications were of the quality required by courts who have found personal jurisdiction in cases of this kind." [Transcraft Corp. v. Doonan Trailer Corp., No. 97 4943, 1997 WL 733905, at *9 \(N.D.Ill. Nov. 17, 1997\)](#). The website allows no business transactions to be performed in terms of payment, placing of orders, etc. It merely posts information and requires that customer inquiries be performed by telephone or electronic mail. Furthermore, "national advertisements (including those on the Internet) are insufficient to subject a defendant to jurisdiction in Illinois." *Id.* (citing [IDS, 958 F.Supp. at 1268](#)). In order for Defendants to be subject to this Court's jurisdiction, Plaintiffs must establish evidence that Defendants intended their Internet advertisements to reach Illinois in particular. [Hasbro, Inc. v. Clue Computing, Inc., 994 F.Supp. 34, 41 \(D.Mass.1997\)](#). Plaintiffs have failed to establish such evidence. Accordingly, this Court cannot find that Defendants were purposefully serving an Illinois market and the website cannot be used to establish jurisdiction. [Transcraft, 1997 WL 733905, at 810.](#)

C. Lack of Proper Venue

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*12 Defendant argues in the alternative that if personal and subject matter jurisdiction were found, this Court should transfer the case to Arizona based on improper venue. Plaintiffs assert that venue is proper under [28 U.S.C. § 1391](#), and cites a Federal Circuit case which allows for venue if personal jurisdiction is found over Defendants. [North American Phillips Corp. v. American Vending Sales, Inc. 35 F.3d 1576, 1577 n. 1 \(Fed.Cir.1994\)](#). However, this Court has determined that it lacks personal jurisdiction over Defendants, therefore, the motion to transfer is dismissed as moot.

CONCLUSION

For the foregoing reasons, Defendants' Motion to Dismiss for Lack of Jurisdiction (doc. # 4) is GRANTED. Defendants' Motion to Transfer for Improper Venue (doc. # 4) is DISMISSED as moot. This case is accordingly DISMISSED.

IT IS SO ORDERED.

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- [2001 WL 34667234](#) (Trial Pleading) Complaint (Mar. 22, 2001)
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Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
Division.
MEDI USA L.P., Plaintiff,
v.
AIRCAST INCORPORATED, Defendant.
No. 94 C 4478.
May 31, 1995.

MEMORANDUM OPINION AND ORDER

HOLDERMAN, District Judge:

*1 Plaintiff, Medi USA L.P. ("Medi"), brought this action for a declaratory judgment that the United States Patent No. 4,280,489 (the " '489 patent") owned by defendant Aircast Incorporated ("Aircast") is either invalid or has not been infringed by any product made, used or sold by Medi. Defendant Aircast has moved to dismiss this claim for lack of personal jurisdiction, or in the alternative to transfer this action to the United States District Court for the District of New Jersey.

BACKGROUND

Aircast is a New Jersey corporation with its principal place of business in Summit, New Jersey. Aircast is engaged in the manufacture, distribution and sale of certain orthopedic products including ankle braces. Medi, whose principal place of business is in Arlington Heights, Illinois, sells medical compression stockings and similar equipment.

On March 15, 1994, Aircast sent a letter to Medi which charged Medi with infringement of the '489 patent and offered Medi a license under the '489 patent to permit Medi to manufacture and sell the Medi MAC ankle brace in the United States. Subsequently, on June 22, 1994, Medi filed this lawsuit seeking a declaratory judgment on the validity and infringement of the '489 patent.

ANALYSIS

I. Jurisdiction

Aircast's motion to dismiss asserts that the court does not have personal jurisdiction over Medi. The burden to establish jurisdiction is on the party asserting it. Salvor v. Dyniewski, 836 F.2d 341, 342 (7th Cir.1988). A federal district court in Illinois has personal jurisdiction over a party only if an Illinois state court would have such jurisdiction. John Walker & Sons, Ltd. v. DeMert & Dougherty, Inc., 821 F.2d 399, 401 (7th Cir.1987). In Illinois, a court may acquire personal jurisdiction over a non-resident defendant if the defendant is either "doing business" within the state of Illinois or is subject to jurisdiction under the Illinois long arm statute. Asset Allocation & Mgt. Co. v. Western Employers Insurance Co., 892 F.2d 566, 570 (7th Cir.1989). In this case, Aircast was not conducting business in Illinois in such a manner that was substantial or with a fair measure of permanence and continuity and therefore, is not subject to jurisdiction under the "doing business" prong. See Asset Allocation, 892 F.2d at 570.

According to the Illinois long-arm statute, an Illinois court has jurisdiction if the cause of action arises from the transaction of any business within the State. 735 ILCS 5/2-209. This district has held that the sending of infringement letters into the jurisdiction is sufficient to be the "transaction of business" in the state. E.J. McGowan & Assoc. v. Biotechnologies, Inc., 736 F.Supp. 808, 811 (N.D.Ill.1990); Classic Golf Co. v. Karsten Manufacturing Co., 231 U.S.P.Q. 884, 885, 1986 WL 8953 (N.D.Ill.1986); Wesley-Jessen, Inc. v. Volk, 200 U.S.P.Q. 795, 796 (N.D.Ill.1976). Therefore, because defendant Aircast sent a letter to plaintiff claiming plaintiff's infringement of the '489 patent and the cause of action for declaratory judgment arose from the jurisdictional act of defendant sending the letter into Illinois, plaintiff has satisfied jurisdiction under the Illinois long-arm statute.

*2 The court must also determine whether asserting personal jurisdiction over Aircast meets the due process requirement. The central element in the due process analysis is whether "the defendant purposefully established 'minimum contacts' in the forum State." Burger King Corp. v. Rudzewicz, 471 U.S. 462, 474, 105 S.Ct. 2174, 2183 (1985). The Supreme Court defined minimum contacts as "some act by which the defendant purposefully avails itself of the privilege of conducting activities within the

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forum State, thus invoking the benefits and protections of its laws." Hanson v. Denckla, 357 U.S. 235, 253, 78 S.Ct. 1228, 1240 (1958). In analyzing the defendant's activity, the court must determine whether "the defendant's conduct and connection with the forum State are such that he should reasonably anticipate being haled into court there." World-Wide Volkswagen Corp. v. Woodson, 444 U.S. 286, 297, 100 S.Ct. 559, 567 (1980).

Although sending an infringement letter falls within the ambit of the long-arm statute, additional contacts are necessary to satisfy due process. See E.J. McGowan, 736 F.Supp. at 812; International Honeycomb Corp. v. Transtech Service Network, Inc., 742 F.Supp. 1011, 1013 (N.D.Ill.1990). In this case, Aircast purposefully availed itself of a business transaction with an Illinois corporation and it would not be unreasonable or unforeseeable for the defendant to be haled into an Illinois court. Aircast directly sends its products into Illinois from which it derives substantial revenue. Additionally, an employee of Aircast, who lives in Missouri, makes regular business visits into Illinois for the purpose of servicing the southwestern portion of Illinois. Aircast, also, has its employees present at its exhibition booths at trade shows, conventions, or seminars in Illinois. The court finds that these actions made it reasonably foreseeable that Aircast would be haled into an Illinois court. Accordingly, Aircast's motion to dismiss for lack of personal jurisdiction is denied.

II. Motion to Transfer

In addition to its motion to dismiss, Aircast has moved alternatively to transfer this action to the United States District Court for the District of New Jersey pursuant to 28 U.S.C. § 1404(a). Transfer is appropriate under section 1404(a) where the moving party establishes: (1) that venue is proper in the transferor district; (2) that venue is proper in the transferee district; and (3) that the transfer will serve the convenience of the parties and the witnesses and will promote the interest of justice. 28 U.S.C. 1404(a); see Coffey v. Van Dorn Iron Works, 796 F.2d 217, 219 n. 3 (7th Cir.1986). Venue is proper in this district since it has been determined that jurisdiction over Aircast is proper. Venue also exists in New Jersey because Aircast's principal place of business is in New Jersey and therefore, is considered a resident of New Jersey. See 28 U.S.C. § 1391(c); 28 U.S.C. § 1400(b).

*3 The remaining consideration is whether the

transfer will serve the convenience of the parties and the witnesses and the interests of justice. District courts have broad discretion to grant or deny a motion to transfer. Heller Financial v. Midwhey Powder Co., Inc., 883 F.2d 1286, 1293 (7th Cir.1989). In making its determination, the court must consider the factors in § 1404(a) while also giving weight to the plaintiff's choice of forum. The burden is on the movant to establish "by reference to particular circumstances, that the transferee forum is clearly more convenient." Coffey, 796 F.2d at 220.

In this case, the convenience of the parties and witnesses weighs in favor of transfer to New Jersey. All of Aircast's documents and financial records, as well as individuals likely to have knowledge of the facts relating to this case including the development and patenting of the '489 patent are in New Jersey. Whereas all witnesses who have knowledge of the development of the Medi MAC ankle brace in question are located in Germany at Medi's parent company, not in Illinois. Therefore, considering the convenience of the witnesses and the interest of justice, New Jersey is a more proper forum.

CONCLUSION

For the reasons stated above, defendant's motion to dismiss is DENIED and defendant's motion to transfer to the United States District of New Jersey is GRANTED.

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**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS**

**HARMAN INTERNATIONAL INDUSTRIES,
INC.,
A DELAWARE CORPORATION**

Plaintiff,

v.

**MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,
A MASSACHUSETTS CORPORATION**

Defendant.

Case No(s): 05 C 1481

Hon. James F. Holderman, Jr.

**PLAINTIFF HARMAN'S OPPOSITION TO
DEFENDANT'S MOTION TO DISMISS OR TRANSFER**

INTRODUCTION

Based on MIT's Motion and citation of case law, MIT would have this Court believe that Harman filed its declaratory judgment action in Illinois based on Harman's receipt of a notice letter and then Harman filed its complaint with having any substantive apprehension that MIT threatened to sue Harman. This is just not the case here. MIT sent a notice letter to Harman's customer Porsche AG two years ago. During the last two years, Harman and MIT have engaged in three face-to-face meetings. Also, Harman presented a *prima facie* case of invalidity including claim charts referencing the invalidating prior art. MIT submitted a response to Harman's *prima facie* case of invalidity. This was followed up by Harman in 2005 with a reply to MIT's response showing errors such as MIT's use of the wrong legal standard. Throughout, these two years, MIT, through its agent Mr. Robert Swartz, has threatened Harman and its customers with patent infringement lawsuits.

ARGUMENT

Under Federal Circuit law, Harman's "first-filed declaratory action is entitled to precedence as against [MIT's] later-filed patent infringement action." *Genentech*, 998 F.2d at 938. That MIT's later-filed action is "an affirmative patent infringement action" is of no consequence: "The considerations affecting transfer to or dismissal in favor of another forum do not change simply because the first-filed action is a declaratory action." *Id.* MIT, as the second to file, "bears the burden of showing any special circumstances which justify a divergence from the 'first-to-file' rule." *Chicago Hts. Steel v. Rapid Eng'g, Inc.*, 1995 WL 27398, at *1 (N.D. Ill. Jan. 23, 1995) (dismissing second-filed action and explaining that second-filer "bears the burden of showing any special circumstances which justify a divergence from the 'first-to-file' rule").

MIT cannot meet that burden here because Harman's declaratory action is proper and because all the equities strongly favor deference to Harman's first-filed action.

I. Either MIT's Express Charges Of Infringement Or The 2-Year "Totality of Circumstances" Between The Parties Created An Actual Controversy.

The issue before this Court is whether this dispute should be resolved here in the action that Harman filed first, or in Massachusetts where MIT filed its 9-paragraph complaint more than 8 weeks later (and on the eve of filing the instant motion). *See* Ex. 1, Complaint in *MIT v. Harman*, No. 05-10990 (D. Mass. May 12, 2005). The linchpin in MIT's argument is its belief that Harman filed suit *before* the March 14th meeting. An unfortunate scrivener's error on the Affidavit of Service, which the attached Corrected Affidavit of Service (*see* Ex. 2) remedies, led MIT to that belief. When Harman informed MIT of this error and invited MIT to withdraw its motion, MIT declined. *See* Ex. 3, M. Francis 6/02/05 letter to B. Roche and S. Bauer; *see also* Ex. 4, K. Mottley 06/7/05 letter to M. Francis.

A. MIT Expressly Charged Harman With Infringement.

MIT, through its agent located in this judicial district—indeed, its “Manager, Intellectual Property”—has charged Harman with patent infringement and threatened to target Harman's customers for nearly two years. On March 24, 2003, Mr. Swartz, MIT's Manager of Intellectual Property who MIT concedes is located in this judicial district, accused Porsche, a Harman customer, of infringing the '685 patent.¹ *See* Ex. 5 (providing “voice” and “fax” numbers in this judicial district); MIT's Mem. In Support (“MIT Br.”) Br. at 2. MIT's initial charge of infringement asserted 4 claims of the patent-in-suit. *See id.* at enclosure (3). And, MIT began to threaten litigation, stating:

¹ MIT initially asserted, and later withdrew, a second patent. That patent is not at issue in this case.

- “Before we commit to the significant expenditure of time and money that it would require to take this matter to the next level....”
- “[A]lways clearly beneficial to avoid litigation when possible....”

Id. at 1-2.

Harman responded to MIT’s threats by negotiating in good faith. On December 12, 2003, Harman’s Chief IP counsel, European IP counsel, and outside counsel met with Mr. Swartz of MIT in Deerfield, Illinois (at his request) in this judicial district. Ex. 6 at ¶ 25. Harman prepared and presented to MIT written analyses demonstrating the invalidity of each asserted claim. *See* Ex. 7, excerpts from Analysis of U.S. Patent No. 5,177,685; *see also* Complaint at ¶¶ 24-25. In response, MIT asserted 4 additional claims of the patent-in-suit. *See, e.g.,* Ex. 6 at ¶ 14; Ex. 8, R. Swartz 02/26/04 email to R. Hart.

Harman continued its good-faith negotiations with MIT over the next several months, exchanging several emails and letters and conducting at least one telephone conference wholly within this judicial district. *See* Ex. 6 at ¶ 14-16. MIT scheduled another meeting in Deerfield, Illinois for August 23, 2004 that was replaced with a telephone conference the morning it was meant to occur. *Id.*

Mr. Swartz continued to charge Harman with infringement. Harman supplemented, and provided to MIT, its written invalidity analyses with additional references to address the 4 additional claims that MIT asserted. *See* Ex. 9, M. Addy 6/25/04 letter to R. Swartz (setting forth “for MIT multiple reasons why the ’685 patent is invalid and unenforceable”); Complaint at ¶¶ 22-29. MIT again threatened litigation:

I am under increasing pressure on this matter from MIT. All they see is delay on your part. We waited months to have an [sic] meeting, only to have it canceled and be presented with a request for more information. I don’t think it will be to any ones [sic] advantage if this is taken to a higher level.

Ex. 10, R. Swartz 9/23/04 letter to R. Hart (again providing Illinois “voice” and “fax” numbers).

When Harman demanded “detailed analysis from [MIT’s] patent counsel rebutting [Harman’s] invalidity and unenforceability” assertions before it would continue negotiations, MIT again escalated its charge of infringement. On November 14, 2004, MIT not only made the infringement accusations more explicit, it increased the number of asserted claims three-fold:

- “This letter will explain why we believe that [MIT’s] patent is being infringed by Harman....”
- “Harman’s products infringe at least 24 claims of [MIT’s] Patent....”
- “[T]wenty four claims [] have thus far been identified as being infringed.”
- “[T]hese and other important features clearly set forth in all claims of the [MIT’s] patent are being used in the accused Harman systems....”

Ex. 11 at 1, 2, 4, 13.

Harman still continued to negotiate in good-faith and met again with MIT’s Mr. Swartz, this time at Harman’s Northridge, California offices, on January 19, 2005. Harman provided another supplement to its written invalidity and unenforceability presentation with additional references addressing the now 24 claims MIT asserted. *See* Ex. 12, Harman’s 1/19/05 Presentation; Complaint at ¶¶ 22-29. MIT threatened to sue 4 Harman customers and stated that MIT’s “attorneys were chomping at the bit” for this case. Ex. 6 at ¶ 23. Harman warned MIT that negotiations were nearing their breaking point that same day:

In December 2003, Harman made a *prima facie* showing that the ’685 patent is invalid. Although appreciative that MIT prepared the legal analysis by Mr. Call in November 2004, the analysis misapplies the law and the facts. If anything, Mr. Call’s opinion reinforces the invalidity of the ’685 patent. Moreover, the facts supporting inequitable conduct further support invalidity. Based on the evidence of invalidity, MIT’s positions on infringement, and the facts favoring inequitable conduct, it is difficult for Harman to engage in licensing discussions at this time.

Ex. 13, M. Addy 1/19/05 letter to R. Swartz at 12.

Both parties agreed on a final meeting to resolve the dispute, and Harman insisted it include senior members of MIT in addition to Mr. Swartz. On March 14, 2005, Harman’s

general counsel, chief IP counsel, European IP counsel, the vice president of legal affairs of Harman Becker, the chief financial officer of Harman Becker and Harman's outside counsel met with Mr. Swartz and, for the first time, several additional representatives of MIT's Media Lab, including its executive director, associate director, director of finance, and a director from MIT's licensing department.² MIT Br. at Ex. A, Turner Decl. at ¶ 10; Ex. 6 at ¶ 25. MIT again disregarded Harman's substantive analyses and, instead, demanded absurd royalty rates from Harman to settle this dispute. *Id.* at ¶ 26. MIT also threatened to escalate the matter by suing Harman. *Id.* at ¶ 27.

MIT's express charge of infringement—*e.g.*, "Harman's products infringe at least 24 claims of [MIT's] Patent...." Ex. 11 at 2—surely gives rise to an actual controversy. The Federal Circuit agrees:

When the patentee has explicitly charged that a current activity of the declaratory plaintiff is an infringement, "certainty has rendered apprehension irrelevant, and one need say no more."

Genentech, Inc. v. Eli Lilly and Co., 998 F.2d 931, 936 (Fed. Cir. 1993), *abrogated on other grounds*, (vacating dismissal of a first-filed declaratory action) (internal citations omitted). And, MIT's repeated threats of litigation (however thinly-veiled)—*e.g.*, claiming that MIT's "attorneys were chomping at the bit to get this case," Ex. 6 at ¶ 23—only bolster Harman's reasonable apprehension before it brought this lawsuit. *Arrowhead Indus. Water, Inc. v.*

² As further evidence of MIT's ties to Illinois, its Media Lab is sponsored by several companies, including Motorola and AT&T, who have corporate offices in Chicago. According to the Lab's website, "those who support the lab at the sponsor level and higher have the opportunity to share in the lab's intellectual property, license-free and royalty free," while "non-sponsors are precluded from making use of the Laboratory's developments for at least two years after the filing of a patent or copyright." See Ex. 14, Media Laboratory Sponsorship Materials from MIT's Website.

Ecolchem, Inc., 846 F.2d 731, 737-38 (Fed. Cir. 1988) (finding reasonable apprehension where patentee threatened manufacturer and its customer but did not expressly charge infringement).

Because “the forum of the first-filed case is favored,” *Genentech*, 998 F.2d at 937-38, MIT bears the burden “of showing any compelling circumstance or an imbalance of convenience to overcome the presumption that the second filed case should be dismissed in favor of the case filed first.” *Ind. Motor Spdwy v. Polaris Indus. Inc.*, 2000 WL 777895, *2 (S.D. Ind. April 28, 2000); *see also Chicago Hts. Steel*, 1995 WL 27398 at *1 (dismissing second-filed action and explaining that second-filer “bears the burden of showing any special circumstances which justify a divergence from the ‘first-to-file’ rule”). MIT’s accusations of “negotiation tactic” and “forum shopping,” which are not supported by the record, do not suffice to overcome the strong presumption in favor of Harman’s first-filed action, nor do they warrant transfer of it to Massachusetts.

B. The Totality of The Circumstances Shows Harman Was Placed In Reasonable Apprehension of Being Sued By MIT.

MIT cannot genuinely dispute that it expressly charged Harman with infringement of the ’685 patent: “Harman’s products infringe at least 24 claims of [MIT’s] Patent....” Ex. 11 at 2. And, there is no question that MIT’s express charges of infringement satisfy the actual controversy requirement. *See Genentech*, 998 F.2d at 936-37; *Sierra Applied Sciences, Inc. v. Adv. Energy Indus., Inc.*, 363 F.3d 1361, 1374-75 (Fed. Cir. 2004) (reversing dismissal and finding independent grounds for reasonable apprehension based upon two letters, spaced more than four years apart, that charged infringement and threatened to “aggressively protect [patent] rights”); *Vanguard Research, Inc. v. Peat, Inc.*, 304 F.3d 1249, 1255 (Fed. Cir. 2002) (reversing dismissal where patentee informed competitor’s customers that competitor was infringing).

MIT nonetheless seems to argue that there is no actual controversy because “Harman filed this suit before the [March 14th] meeting had ended.” MIT Br. at 7. But, MIT is wrong. Harman filed suit only after the parties had reached an impasse and the March 14th meeting had ended. MIT cannot disavow its later-filed action, MIT Br. at 7 n.2, to allege that Harman’s apprehension was unreasonable. Taking MIT at its word that it needed three extensions of time for its “only recent retention of ... counsel,” (Ex. 15, MIT’s Three Requests For Extensions) the speed with which MIT was able to file suit in Massachusetts—just 2 weeks to conduct the pre-filing investigation the law requires for a patent infringement suit, *see e.g., Antonious v. Spalding & Evenflo Cos., Inc.*, 275 F.3d 1066, 1073-76 (Fed. Cir. 2002) (explaining Rule 11 pre-filing investigation obligation in patent cases)—is remarkable. That speed belies MIT’s allegation that negotiations were ongoing at the conclusion of the March 14th meeting.

MIT also contends that no actual controversy existed because “on information and belief, neither Mr. Swartz nor any other person on behalf of MIT ever threatened litigation, or expressed to Harman that MIT was planning to sue Harman, at any time during the approximately two years of license negotiations.” MIT Br., Ex. A, at ¶ 9; *see also id.* at 5 (quoting same without “on information and belief”). Again, MIT is wrong. MIT, through its agent Mr. Swartz, in fact, threatened Harman with litigation numerous times.

With or without express threats of litigation, the “totality of circumstances,” gives rise to an actual controversy. *Arrowhead*, 846 F.2d at 735 (totality of circumstances supported reasonable apprehension where the “patentees conduct and statements [fell] short of an express charge”). Even MIT concedes that “[i]n the end, the question is whether the relationship between the parties can be considered a ‘controversy,’ and that inquiry does not turn on whether the parties have used particular ‘magic words’ in communicating with one another.” MIT Br. at

8 (quoting *EMC Corp. v. Norand Corp.*, 89 F.3d 807, 812 (Fed. Cir. 1996)). Here, the “totality of circumstances” gave rise to an actual controversy. *See Arrowhead*, 846 F.2d at 735.

By its own admission—“negotiations ... had been going on for over a year,” MIT Br. at 6. MIT distinguishes this lawsuit from each case it cites, each of which was filed shortly after an initial assertion letter. *See e.g., Holley Perf. Prods., Inc. v Barry Grant, Inc.*, 2004 WL 3119017 (N.D. Ill. 2004) (2 months); *Livorsi Marine, Inc. v. Nordskog Publ’g, Inc.*, 268 F. Supp. 2d 994, 997 (N.D. Ill. 2003) (2 months); *Infosys, Inc. v. Billingnetwork.com*, 2003 WL 22012687 (N.D. Ill. 2003) (3 months); *Trost v. Bauer*, 2001 WL 845477 (N.D. Ill 2001) (2 months). There is nothing in the record suggesting that Harman filed suit “rather than to respond to [MIT’s] letters,” *Philips Plastics Corp. v. Kato Hatsujou Kabushiki Kaisha*, 57 F.3d 1051, 1052 (Fed. Cir. 1995); or to gain “commercial advantage,” *EMC.*, 89 F.3d at 810; or after approaching MIT before MIT asserted the patent against Harman, *Shell Oil Co. v. Amoco Corp.*, 970 F.2d 885, 888 (Fed. Cir. 1992) (patentee was approached by declaratory judgment plaintiff, and patentee merely defended the validity of its patent in negotiations).

Rather, the parties here engaged in substantive negotiations for nearly two years. Harman provided detailed claim charts and analyses demonstrating the invalidity, unenforceability and non-infringement of each claim MIT asserted. Coupled with MIT’s repeated threats, MIT’s unwillingness to substantively rebut Harman’s *prima facie* showings sets this case apart. *See Holley*, at *4 (single communication); *Livorsi*, at 999 (three letters “suggesting that the parties engage in licensing negotiations”); *Infosys*, at *6 (three letters, “one of which states ‘We are not charging you with infringement of the patent....’”). Considered separately, or in the aggregate, the parties’ activities evidence an actual controversy and Harman’s reasonable apprehension.

III. MIT Presents No “Sound Reason” For This Court To Decline Jurisdiction.

For example, MIT claims that Harman improperly brought this action “for no reason other than as a negotiation tactic.” MIT Br. at 1. But the record shows, and MIT has conceded, that prior to filing suit Harman had engaged in settlement negotiations with MIT for nearly two years and that those negotiations were undertaken by Harman in good faith, not for the purpose of trickery. *See* MIT Br. at 3-4, 6. And, Harman had expressly warned MIT during those negotiations that if litigation ensued, Harman would not only defend itself against MIT’s infringement assertions, but would also put the validity and enforceability of MIT’s patent at issue. Ex. 6 at ¶ 24-26.

Equally unsupported by the record is MIT’s claim that Harman’s complaint is “nothing more than a preemptive strike to secure a favorable forum.” MIT Motion at ¶ 2. MIT brought Harman to Illinois when it engaged Mr. Swartz to assert the patent-in-suit against Harman. MIT concedes that Mr. Swartz “lives in Illinois,” “assist[ed] MIT in licensing some of its technology, began discussions with Harman about licensing [U.S. Patent 5,177,685] the ’685 patent,” and “had meetings with Harman in Chicago.” MIT Br. at 2, 4. MIT’s broad assertion that “all potential discovery sought from MIT (witnesses and documentary evidence) will be located in Massachusetts,” boils down to just a single potential witness. *Id.* at 2. And, MIT all but concedes that Harman’s contacts in Massachusetts are limited to two subsidiaries that have nothing whatsoever to do with the Harman navigation system products at issue. *See id.* at 2, 3 (claiming that Harman’s evidence is “variously located (it appears) in California, Michigan and Germany”). In fact, one such subsidiary is a shell corporation existing only for tax purposes—that is not even in Massachusetts—while the other is an operating company solely for luxury professional home audio products. Ex. 6 at ¶ 6-10.

The record shows no “compelling circumstance” sufficient for MIT to overcome the presumption in favor of this lawsuit that Harman filed first. *See Genentech*, 998 F.2d at 937-38. The settlement negotiations alone, which went on for nearly two years and included Harman’s claim charts and thorough analysis as to why the ’685 patent is invalid, not infringed and unenforceable, distinguish this case from the cases MIT cites, in which courts have declined to exercise their discretion to keep declaratory judgment actions filed in the absence, or in the midst, of settlement negotiations. MIT’s motion should therefore be denied.

IV. MIT’s Later-Filed Lawsuit.

MIT must present “sound reason that would make it unjust or inefficient to continue [Harman’s] first-filed action.” *Genentech*, 998 F.2d at 938; *Kahn v. General Motors Corp.*, 889 F.2d 1078, 1081-83 (Fed. Cir. 1989) (finding abuse of discretion where court stayed first-filed without compelling circumstances). MIT’s allegations that “Harman filed suit during ongoing licensing negotiations in order to better its bargaining position” or engaged in “forum shopping” are speculation, not sound reason.

Only after the parties negotiated for two years in an effort to resolve their dispute without litigation; only after Harman presented multiple, detailed analyses demonstrating the non-infringement, invalidity, and unenforceability of each claim MIT asserted (Compl. at ¶¶ 22-29) while MIT’s charges of infringement and threats of litigation became more persistent; only after the parties agreed on a final meeting that ultimately occurred on March 14th; only after Harman negotiated in good faith in that final meeting, just as it had with all prior meetings and communications, even though MIT again refused to address the substance of Harman’s analyses; and only after MIT demonstrated in those negotiations that it would continue to demand a royalty from Harman for an invalid patent that was not infringed, did Harman file suit.

This record is easily distinguishable from the *EMC* case upon which MIT relies. 89 F.3d at 810. Here, Harman and MIT are not competitors. *Id.* (finding that the complaint was filed as a strategic move between competitors based on plaintiff's counsel explanation that "the declaratory judgment complaint had been filed as 'merely a defensive step' and ... By way of explaining why the complaint was filed, [plaintiff's] counsel added that [plaintiff's] management decided to file suit because "they just thought it was in their interest to protect themselves first and continue discussions"). MIT acknowledged to Harman that the '685 patent has never been licensed or commercialized. *See* Ex. 6 at ¶ 12. There is nothing in the record suggesting that the "mere pendency of [Harman's] lawsuit may negatively affect the value of [MIT's] patent in that market and the price any potential purchaser ... might be willing to pay." *EMC*, at 810.

As to MIT's "forum shopping" allegations, its eleventh-hour filing of suit against Harman in Massachusetts speaks volumes, particularly when MIT admits that its jurisdictional bases for that suit are two subsidiaries that have nothing whatsoever to do with the Harman navigation system products at issue. *See* MIT Br. at 2, 3, 12 (claiming that Harman's evidence is "variously located (it appears) in California, Michigan and Germany"); MIT Complaint at ¶ 2. And, MIT's hyperbole (*e.g.*, This "forum [is] convenient to Harman's counsel, and *inconvenient* to all others involved in this case." MIT Br. at 9 (emphasis in original)) ignores the fact that MIT brought Harman to Illinois when it engaged Mr. Swartz to assert the '685 patent against Harman. *Id.* at 2, 4. As explained in detail below, Harman filed this action in Illinois *inter alia* because it is more convenient than either California (Harman) or Massachusetts (MIT) for the likely (i) Harman documents and witnesses located in Germany and the Detroit area, (ii) various automotive industry witnesses located in the Detroit area, and (iii) potential Harman and MIT

witnesses located in this judicial district. Therefore, this Court should deny MIT's motion to dismiss.

V. The Equities Strongly Favor Keeping The Case Here In Chicago.

There is no genuine dispute regarding the propriety of personal jurisdiction, and MIT's brief in footnote 3 notwithstanding, MIT has waived any challenge to personal jurisdiction. *See* Fed. R. Civ. P. 12(g) (requiring a party to consolidate in its first motion 'any Rule 12 defense or objection then available'); Rule 12(h) (waiver for failure to raise personal jurisdiction defense in first motion); *see also O'Brien v. R.J. O'Brien & Assocs., Inc.*, 998 F.2d 1394, 1400, 1401 (7th Cir. 1993) (waiver where defendant fails to make "specific" jurisdiction objection when such objection existed at the time it filed its first motion); *Opatkiewicz v. Keffler Constr. Co.*, 1988 WL 107345 (N.D. Ill. Oct. 7, 1988) (denying motion to dismiss where plaintiff challenged venue directly, but "suggest[ed]" in one unsupported paragraph that the court lacked personal jurisdiction). There is no genuine dispute as to venue either. MIT's "improper venue" allegation is substantiated only by its admission that "the District of Massachusetts is a *more* appropriate venue." MIT Br. at 10 (emphasis in original); MIT Motion at 1.

As to transfer, MIT "has the burden of establishing, by reference to particular circumstances, that the transferee forum [Massachusetts] is clearly more convenient" than this forum. *Coffey v. Van Dorn Iron Works*, 796 F.2d 217, 219-20 (7th Cir. 1986) (transfer not warranted merely because all records and witnesses were in Ohio showing only that Ohio court would be "as convenient as" Indiana, not clearly more convenient) (emphasis added); *see also Genentech*, 998 F.2d at 938 (explaining the preference for the first-filed action is so strong that "the court's discretion tempers [it] and yields only to a forum in which all interests are best served"); *Old Republic Ins. Co. v. NMR & P.*, 2004 WL 742096, *2 (N.D. Ill. 2004) (denying transfer because substantial events occurred in Chicago). MIT's attempt to transfer its alleged

inconvenience in Illinois to Harman's inconvenience in Massachusetts perhaps reveals MIT's motives but does not help MIT meet its burden. *See Sage Prods., Inc. v. Devon Indus., Inc.*, 148 F.R.D. 213, 216 (N.D. Ill. 1993) (transfer not appropriate if an inconvenience to one party is simply transferred to the other party). Each factor that MIT claims "weighs in favor of transfer" amounts to nothing more than MIT's own convenience: MIT's choice of forum, for the convenience of "MIT's witnesses" and "MIT's evidence." MIT Br. at 12. But, MIT's own convenience is a far cry from establishing that MIT's choice of forum "is clearly more convenient" than this forum where Harman filed first. *Coffey*, 796 F.2d at 219-20.

Harman's, not MIT's, choice of forum is entitled to substantial weight because Harman filed first and because substantial events occurred here. *Piper Aircraft Co. v. Reyno*, 454 U.S. 235, 255-56 (deference to plaintiff's choice of forum); *Genentech*, 998 F.2d at 936 (vacating dismissal of a first-filed declaratory action); *United Airlines, Inc. v. Mesa Airlines, Inc.*, 8 F. Supp. 2d 796, 798 (N.D. Ill. 1998) (transfer not warranted from plaintiff's chosen forum where Illinois has as much contacts other potential districts). Likewise, MIT's desire to litigate on its home turf in Massachusetts matters not at all. *See Old Republic*, 2004 WL 742096 at *3 ("With respect to the convenience of the parties, th[is] court recognizes that it is easier for each party to litigate on its home turf, and thus, this factor does not weigh in either party's favor.").

MIT's alleged convenience of MIT's witnesses, namely its employee in Massachusetts³, falls far short of meeting its burden. *See Photogen, Inc. v. Wolf*, 2001 WL 477226 (N.D. Ill.

³ Convenience of witnesses arguably is irrelevant because MIT failed to identify likely witnesses. *See Allied Van Lines, Inc. v. Aaron Transfer & Storage, Inc.*, 200 F. Supp. 2d 941, 946 (N.D. Ill. 2002); *see also Brandon Apparel Group, Inc. v. Quitman Mfg. Co., Inc.*, 42 F. Supp. 2d 821, 834 (N.D. Ill. 1999). Of the two inventor witnesses that MIT does identify, MIT admits that Mr. Davis "currently resides in Canada." MIT Br. at 3. The other, Mr. Schmandt who MIT states "resides in Massachusetts" appears to be a MIT employee. *Id.*; *see also* Ex. 26, MIT Directory Listing for C. Schmandt.

2001) (transfer denied because “[t]he parties will presumably ensure that [employees] are available to testify wherever the trial is held”) (citing *College Craft Co. v. Perry*, 889 F. Supp. 1052, 1055 (N.D. Ill. 1995)). And, MIT’s alleged convenience due to its “evidence availability” in Massachusetts cannot carry the day, since, “given the realities of modern technology and in the absence of any unusual circumstances, it is unlikely that the ease of access to sources of proof will be significantly different in Illinois or [Massachusetts].” *Old Republic*, 2004 WL 742096 at 2 (transfer denied because substantial events occurred in Chicago); *see also Photogen*, 2001 WL 477226 at 5 (“Documents and records are usually not a very persuasive reason to transfer a case. They are easily transportable, and movant has made no showing that it cannot bring the necessary documents to this district.”).

The convenience of the potential non-party witnesses further demonstrates that transfer is unwarranted. MIT admits that one inventor of the ‘685 patent currently resides in Canada. MIT Br. at 3. A potential fact witness regarding the parties’ negotiations, Meredith Addy, resides in Chicago. And, as MIT acknowledged, Harman’s customers in the automotive industry are located in Detroit, Michigan. *Id.* Massachusetts is not “clearly more convenient” for any of these witnesses.

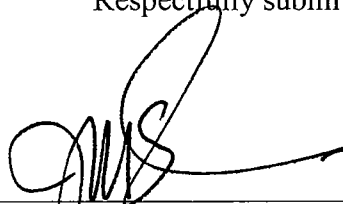
Finally, the interests of justice should not reward MIT for filing a second action on the ‘685 patent with no mention that Harman’s first-filed action was pending here. Because MIT “has not shown that Massachusetts is a clearly superior forum,” *Photogen*, 2001 WL 477226 at *6, this Court should deny MIT’s motion to transfer.

CONCLUSION

For these reasons, Defendant Massachusetts Institute Of Technology's Motion To Dismiss, Or In The Alternative Transfer, Plaintiff Harman International Industries Complaint should be denied.

Dated: June 10, 2005

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'WAS', is written over a horizontal line.

William A. Streff Jr., P.C.

Michelle A. H. Francis

Jamal M. Edwards

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200 East Randolph Drive

Chicago, IL 60601

(312) 861-2000 (phone)

(312) 861-2200 (fax)

Attorneys for Plaintiff

Exhibit 1

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

RECEIPT # 64246
AMOUNT \$ 250.00
SUMMONS ISSUED yes
LOCAL RULE 4.1 yes
WAIVER FORM yes
MCF ISSUED yes
BY DPTY. CLK. [Signature]
DATE 5-12-05

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,

Plaintiff,

v.

HARMAN INTERNATIONAL
INDUSTRIES, INCORPORATED,

Defendant.

Civil Action No.:

05-10990DPW

COMPLAINT

Plaintiff Massachusetts Institute of Technology ("MIT"), by its attorneys Proskauer Rose LLP, brings this action for patent infringement against Harman International Industries, Inc. ("Harman").

Parties

1. Plaintiff MIT is an educational and research institution organized under the corporate laws of the Commonwealth of Massachusetts with a principal place of administration in Cambridge, Massachusetts.

2. On information and belief, Defendant Harman is a Delaware corporation with corporate headquarters at 1101 Pennsylvania Avenue, N.W., Suite 1010, Washington, D.C. 20004, and a principal place of business at 8500 Balboa Blvd., Northridge, CA 91329.

3. On information and belief, at least two of Harman's subsidiaries and/or divisions are located within this district.

Jurisdiction and Venue

4. This case arises under the patent laws of the United States, 35 U.S.C. § 1 et seq. This court has subject matter jurisdiction over this Complaint pursuant to 28 U.S.C. §1331 and 1338.

5. Venue is proper in this District pursuant to 28 U.S.C. §§ 1391(b) & (c), and 1400.

COUNT I

Harman's Infringement of U.S. Patent No. 5,177,685

6. MIT realleges, and incorporates by reference, the allegations contained in paragraphs 1 to 5 above.

7. MIT is the owner of all right, title and interest in and to U.S. Patent No. 5,177,685, entitled "Automobile Navigation System Using Real Time Spoken Driving Instructions," which issued on January 5, 1993 (the "'685 patent").

8. On information and belief, Harman manufactures, uses, offers to sell, and sells products, including but not limited to the Harman/Kardon TrafficPro product, which infringe, contribute to the infringement of, or induce the infringement of one or more of the claims of the '685 patent.

9. MIT has been, and is being, irreparably harmed, and has incurred, and will continue to incur, damages as a result of Harman's infringement of the '685 patent.

REQUEST FOR RELIEF

WHEREFORE, MIT prays for judgment against Harman as follows:

- (a) declaring that Harman has infringed the '685 patent;
- (b) awarding MIT all relief available under the patent laws of the United States, including but not limited to monetary damages;
- (c) awarding MIT its costs and reasonable attorney's fees in respect thereto in accordance with 35 U.S.C. §§ 284-85; and
- (d) granting MIT such other relief as the Court deems just and equitable.

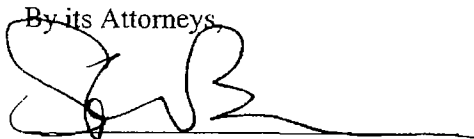
DEMAND FOR JURY TRIAL

MIT demands a trial by jury on all issues so triable.

Respectfully Submitted,

Massachusetts Institute of Technology

By its Attorneys,



Steven M. Bauer (BBO# 542531)

Kimberly A. Mottley (BBO# 651190)

PROSKAUER ROSE LLP

One International Place

Boston, Massachusetts 02110-2600

Phone: 617-526-9600

Fax: 617-526-9899

May 12, 2005

Exhibit 2

06/02/05 15:31 FAX

002

JUN-02-2005 16:07

781 344 6354

781 344 6354 P.01/01

AFFIDAVIT OF SERVICE

State of Illinois

County of

U.S.D.C. Court

Case Number: 05C1481

Plaintiff:

HARMAN INTERNATIONAL INDUSTRIES, INC.

vs.

Defendant:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

For:

Hatfield Process Services

1669 Jefferson

Kansas City, MO 64108

Received by Hatfield Process Services on the 14th day of March, 2005 at 1:19 pm to be served on **MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 77 MASSACHUSETTS AVENUE CAMBRIDGE, MA 02139-4307.**

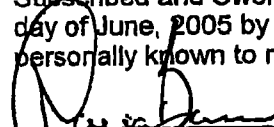
I, James Campbell, being duly sworn, depose and say that on the 14th day of March, 2005 at 4:35 pm, I:

Served the within named corporation by delivering a true copy of the **SUMMONS IN A CIVIL CASE AND COMPLAINT FOR DECLARATION OF NON-INFRINGEMENT, INVALIDITY, AND UNENFORCEABILITY OF U.S. PATENT NO.5,177, 685 WITH EXHIBITS(A-D)** with the date and hour of service endorsed thereon by me to John S. Marshall as the Registered Agent for above company authorized to accept service on behalf of within named corporation and compliance with state statutes.

Description of Person Served: Age: 60, Sex: M, Race/Skin Color: White, Height: 5'10, Weight: 190, Hair: Gray, Glasses: N

I certify that I am over the age of 18 and have no interest in the above action.

Subscribed and Sworn to before me on the 2nd day of June, 2005 by the affiant who is personally known to me.


NOTARY PUBLIC



MARIA BARROS
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 21, 2010


James Campbell
Civil Process Division

Hatfield Process Services
1669 Jefferson
Kansas City, MO 64108
(816) 842-9800

Our Job Serial Number: 2005000971
Ref: 2005002836
Service Fee: _____

-----Original Message-----

From: Jamal Edwards [mailto:jedwards@kirkland.com]
Sent: Monday, March 14, 2005 1:16 PM
To: jhendren@hatfieldprocess.com
Cc: Michelle Francis
Subject: Complaint for Urgent Filing

Jody-

Thanks for your help. Our client/matter# is 40601-0002. The Summons and Complaint are attached below. We very much want to serve MIT today, please call me to advise of status.

JAMAL M. EDWARDS | KIRKLAND & ELLIS LLP
Aon Center | 200 E. Randolph Drive 33rd Floor | Chicago, IL 60601
(312) 861-2400 DIRECT | (312) 630-0719 FAX | www.kirkland.com/jedwards

----- Forwarded by Jamal Edwards/Chicago/Kirkland-Ellis on 03/14/2005 01:12 PM -----

Jamal Edwards/Chicago/Kirkland-Ellis

03/14/2005 01:10 PM

To:jhendren@hatfieldprocess.com
cc
Subject:Test

JAMAL M. EDWARDS | KIRKLAND & ELLIS LLP
Aon Center | 200 E. Randolph Drive 33rd Floor | Chicago, IL 60601
(312) 861-2400 DIRECT | (312) 630-0719 FAX | www.kirkland.com/jedwards

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Complaint for Declaration.pdf Summons.pdf

Exhibit 3

KIRKLAND & ELLIS LLP
AND AFFILIATED PARTNERSHIPS

200 East Randolph Drive
Chicago, Illinois 60601

Michelle A. H. Francis
To Call Writer Directly:
312 861-2416
mfrancis@kirkland.com

312 861-2000

www.kirkland.com

Facsimile:
312 861-2200

June 2, 2005

By Facsimile and First Class Mail

Brian D. Roche
Sachnoff & Weaver, Ltd.
10 South Wacker Drive
Chicago, IL 60606-7507

Steven M. Bauer
Proskauer Rose LLP
One International Place
14th Floor
Boston, Massachusetts 02110-2600

**Re: Harman International Industries, Inc. v MIT,
Civil Action No. 05 C 1481, U.S.D.C. N.D.Ill.**

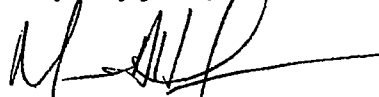
Dear Messrs. Roche and Bauer:

As you know, MIT's pending motion to dismiss is based at least in part upon its alleged belief, as set forth in its brief, that Harman filed the instant action *before or during* the parties' March 14, 2005 meeting. That belief is wrong. In fact, Harman's complaint was filed at approximately 12:30 PM (central time, 1:30 PM eastern time), and the file-stamped complaint was forwarded to the process server at 1:16 PM (central time, 2:16 PM eastern time) as evidenced by the enclosed email.

We understand that the Affidavit of Service, which states that the process server received Harman's complaint at 9:57 AM, is wrong. We have learned from the process server that the mistake is nothing more than an unfortunate scrivener's error. We did not discover this error until we investigated the allegations made in your pending motion.

Given the impact that this error seems to have regarding MIT's pending motion, we have enclosed the Corrected Affidavit of Service that we will file shortly. We invite MIT to withdraw its motion, in whole or in part, to avoid any further unnecessary expenditures by the parties or the Court.

Very truly yours,



Michelle A. H. Francis

MAHF/djk

06/02/05 15:31 FAX

002

JUN-02-2005 16:07

781 344 6354

781 344 6354 P.01/01

AFFIDAVIT OF SERVICE

State of Illinois

County of

U.S.D.C. Court

Case Number: 05C1481

Plaintiff:

HARMAN INTERNATIONAL INDUSTRIES, INC.

vs.

Defendant:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

For:

Hatfield Process Services

1669 Jefferson

Kansas City, MO 64108

Received by Hatfield Process Services on the 14th day of March, 2005 at 1:19 pm to be served on
**MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 77 MASSACHUSETTS AVENUE
CAMBRIDGE, MA 02139-4307.**

I, James Campbell, being duly sworn, depose and say that on the 14th day of March, 2005 at 4:35 pm, I:

Served the within named corporation by delivering a true copy of the **SUMMONS IN A CIVIL CASE AND COMPLAINT FOR DECLARATION OF NON-INFRINGEMENT, INVALIDITY, AND UNENFORCEABILITY OF U.S. PATENT NO.5,177, 685 WITH EXHIBITS(A-D)** with the date and hour of service endorsed thereon by me to John S. Marshall as the Registered Agent for above company authorized to accept service on behalf of within named corporation and compliance with state statutes.

Description of Person Served: Age: 60, Sex: M, Race/Skin Color: White, Height: 5'10, Weight: 190, Hair: Gray, Glasses: N

I certify that I am over the age of 18 and have no interest in the above action.

Subscribed and Sworn to before me on the 2nd day of June, 2005 by the affiant who is personally known to me.


NOTARY PUBLIC.


James Campbell
Civil Process Division

Hatfield Process Services
1669 Jefferson
Kansas City, MO 64108
(816) 842-9800



MARIA BARROS
Notary Public
Commonwealth of Massachusetts
My Commission Expires
May 21, 2010

Our Job Serial Number: 2005000971
Ref: 2005002836
Service Fee: _____

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TOTAL P.01

-----Original Message-----

From: Jamal Edwards [mailto:jedwards@kirkland.com]
Sent: Monday, March 14, 2005 1:16 PM
To: jhendren@hatfieldprocess.com
Cc: Michelle Francis
Subject: Complaint for Urgent Filing

Jody-

Thanks for your help. Our client/matter# is 40601-0002. The Summons and Complaint are attached below. We very much want to serve MIT today, please call me to advise of status.

JAMAL M. EDWARDS | KIRKLAND & ELLIS LLP
Asst. Center | 200 S. Randolph Drive | 5th Floor | Chicago, IL 60601
(312) 801-3404 DIRECT; (312) 600-0719 FAX | www.kirkland.com/jedwards

----- Forwarded by Jamal Edwards/Chicago/Kirkland-Ellis on 03/14/2005 01:12 PM -----

Jamal Edwards/Chicago/Kirkland-Ellis

03/14/2005 01:10 PM

To:jhendren@hatfieldprocess.com
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Subject:Test

JAMAL M. EDWARDS | KIRKLAND & ELLIS LLP
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(312) 801-3404 DIRECT; (312) 600-0719 FAX | www.kirkland.com/jedwards

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Complaint for Declaration.pdf Summons.pdf

05/02/05 16:50 FAX 312 861 2200

KIRKLAND & ELLIS LLP

001

 *** TX REPORT ***

TRANSMISSION OK

TX/RX NO 2200
 CONNECTION TEL #9982076400
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 ST. TIME 06/02 16:49
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KIRKLAND & ELLIS LLP

Fax Transmittal

200 East Randolph Drive
 Chicago, Illinois 60601
 Phone: 312 861-2000
 Fax: 312 861-2200

Please notify us immediately if any pages are not received.

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IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR,
 PLEASE NOTIFY US IMMEDIATELY AT:
 312 861-2356.

To:	Company:	Fax #:	Direct #:
Brian D. Roche	Sachnoff & Weaver, Ltd.	312-207-6400	312-207-6490
Steven M. Bauer	Proskauer Rose LLP	617-526-9899	617-526-9600
From:	Date:	Pages w/cover:	Fax #:
Michelle A. H. Francis	June 2, 2005	4	312 861-2200
			Direct #:
			312 861-2416

Message:

Exhibit 4

06/06/2005 15:12 16175269899

PROSKAUER ROSE LLP

PAGE 02/02

PROSKAUER ROSE LLP

One International Place
22nd Floor
Boston, MA 02110
Telephone 617-526-9600
Fax 617-526-9899

LOS ANGELES
WASHINGTON
BOSTON
BOCA RATON
NEWARK
NEW ORLEANS
PARIS

Kimberly A. Mottley
Direct Dial: 617-526-9616
Email: kmottley@proskauer.com

June 6, 2005

Via Facsimile

Michelle A. H. Francis
Kirkland & Ellis LLP
200 East Randolph Drive
Chicago, Illinois 60601
Facsimile No. (312) 861-2200

Re: Harman International Industries, Inc. v. MIT,
Civil Action No. 05-C-1481, U.S.D.C. N.D. Ill.

Dear Ms. Francis:

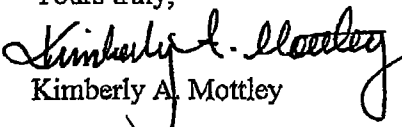
I write in response to your June 2, 2005 letter.

We understand that you contend that your process server mis-entered the time of receipt, but you do not disagree that the complaint was drafted and ready for filing before the MIT/Harman meeting.

If you believe that the time of filing affects the weight of Harman's arguments, feel free to raise this issue in your client's opposition to MIT's motion, due for filing on June 10, 2005. We, on the other hand, don't believe the change of time of filing changes the merits of our motion.

Please do not hesitate to contact me if you would like to discuss this matter further.

Yours truly,


Kimberly A. Mottley

cc: Steven M. Bauer
Brian D. Roche

Exhibit 5

R 12278/E

E
28. März 2003
EIS**The Media Laboratory**

Massachusetts Institute
of Technology
20 Ames Street
Cambridge, Massachusetts
02139-4307

Robert Swartz
Manager, Intellectual Property
Room E15-208, voice (847) 945-3300
Fax (847) 945-2657
Email rswartz@media.mit.edu

E
28. März 2003

March 24, 2003

Dr. Wendelin Wiedeking
President and Chief Executive Officer
Dr. Ing. H.c.F. Porsche AG
Porscheplatz 1
70435 Stuttgart, Germany

Eingang G

27. März 2003

Rücksprache :

Erledigung : E

Kenntnis :

Eingang

1. APR. 2003

EIS

Dear Dr. Wiedeking:

This is to advise you the Media Laboratory of Massachusetts Institute of
Technology owns the following US Patents:

Patent 5,177,685 Automobile Navigation System Using Real Time Spoken Driving
Instructions

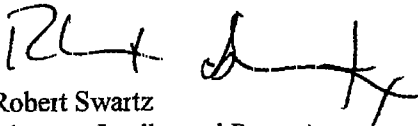
Patent 6,236,768 Method and Apparatus for Automated, Context-Dependent Retrieval
of Information.

These patents relate to providing spoken driving instructions and obtaining information
from a database based on location. We have included claim charts as to how these
patents relate to your products. These claim charts give examples, are for informational
purposes and are not necessarily complete or final.

Before we commit to the significant expenditure of time and money that it would
require to take this matter to the next level, we would like to offer you the opportunity
to license on a non-exclusive basis the right to practice these patents.

Because we would like to license these patents as quickly and as expeditiously as possible, we would like to have a response from you within 21 days as to whether you would like to discuss a license arrangement further. Since it is always clearly beneficial to avoid litigation when possible, we feel sure that it is in both of our interests to dispose of this issue as quickly as we can.

Sincerely,


Robert Swartz
Manager Intellectual Property

Enclosures:

- (1) Patent 5,177,685
- (2) Patent 6,236,768
- (3) Claim Chart for 5,177,685
- (4) Claim Chart for 6,236,768

Exhibit 6

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS**

**HARMAN INTERNATIONAL INDUSTRIES,
INCORPORATED,
A DELAWARE CORPORATION**

Plaintiff,

v.

**MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,
A MASSACHUSETTS CORPORATION**

Defendant.

Case No(s): 05 C 1481

Hon. James F. Holderman, Jr.

DECLARATION OF ROBERT P. HART

I Robert P. Hart declare as follows:

1. I have personal knowledge of the following facts and could competently testify as to the truth of each statement if called as a witness:
2. I have been employed by Harman International Industries, Incorporated ("Harman"). I have been employed with Harman for 4 years, as its Chief Intellectual Property Counsel. I am also a licensed and practicing attorney, duly authorized to practice law in California (under the multi-jurisdictional practice rules), Illinois, Oklahoma and Washington, D.C., and I am a member in good standing of those bars.
3. Harman International Industries, Incorporated ("Harman") is a Delaware corporation with corporate headquarters in Washington, D.C. Harman also has a principal place of business in Northridge, California.
4. Harman does not make, use, sell, offer for sale or import any automobile navigation system products in Massachusetts.
5. Harman is a leading manufacturer, distributor, and retailer of consumer electronic products, who prides itself on making the best audio and video products in the world.
6. Harman's subsidiary Harman Becker Automotive Systems GmbH and Harman Becker Automotive Systems, Inc. makes and sells automobile navigation system products for original equipment manufacturers ("OEMs"), also known as automobile manufacturers.

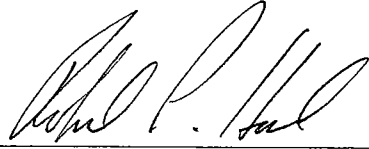
7. Harman's wholly owned subsidiary Lexicon, Inc. ("Lexicon"), is incorporated in Massachusetts. Lexicon does business as Harman Specialty Group, and makes high end loud speakers marketed under the Revel® brand; high end, home theater audio electronic components (digital audio processors, power amps, receivers, and DVD/CD disk players) marketed under the Lexicon® brand name; and high end, home theater audio electronic products (amplifiers, controllers, preamplifiers and CD players) sold under the Mark Levinson® brand name.
8. Lexicon does not make, use, sell, offer for sale, or import any automobile navigation system products.
9. Harman's wholly owned subsidiary Madrigal Audio Laboratories, Inc., ("Madrigal") is incorporated in Delaware – not Massachusetts. In any event, prior to July 1, 2003, Madrigal sold high end, home theater audio and visual products under the Madrigal® and Proceed® brand names and high end, home theater audio electronic products (amplifiers, controllers, preamplifiers and DVD/CD disk players) under the Mark Levinson® brand name. On July 1, 2003, the assets of Madrigal were transferred to Lexicon and the Proceed® brand name was discontinued. Madrigal continues to exist merely as a shell corporation in Delaware.
10. Madrigal does not now, and has never been involved in the making, using, selling, offering for sale, or importing any automobile navigation system products.
11. I personally participated in the negotiations that occurred between Harman and MIT that followed MIT's March 23, 2003 assertion that Harman's navigation system products infringe United States Patent No. 5,177,685 (the "'685 Patent").
12. Starting on December 12, 2003 and continuing until March 14, 2005, MIT's Robert Swartz represented to me during our negotiations that MIT has not licensed or commercialized the '685 patent.
13. On December 12, 2003, I, along with Harman's European counsel, Dr. Tim Bast, and Harman's outside patent counsel, Meredith Addy, met with MIT's Robert Swartz. This meeting occurred at Robert Swartz's Deerfield, IL office located at 520 Lake Cook Road. Mr. Swartz, during that meeting, he threatened to sue not only Harman, but Harman's customers, including Porsche, by making veiled references to Ray Niro, a well-known patent litigation in Chicago, who often handles patent infringement lawsuits on a contingency fee basis.
14. During the December 12, 2003 meeting, Harman presented its written analyses and a *prima facie* case demonstrating the invalidity of each claim of the '685 patent that MIT had asserted. MIT then asserted 4 additional claims of the '685 patent against Harman.
15. On July 13, 2004, I personally participated in a telephone conference with MIT's Robert Swartz and Ms. Addy. I met with Ms. Addy in Chicago where we contacted MIT's Swartz in his Deerfield, IL office using the Illinois telephone numbers he provided to us.
16. During the July 13th telephone conference, MIT refused to consider Harman's *prima facie* case of invalidity of the '685 patent.

17. MIT's Robert Swartz requested another meeting that was scheduled for August 23, 2004 in Chicago. MIT and Harman agreed meet at Swartz's Deerfield, Illinois office. I insisted that before MIT and Harman met again, MIT needed to provide a written response by MIT's patent counsel to Harman's *prima facie* case of invalidity and non-infringement.
18. By August 23rd, MIT still had not substantively responded to Harman's *prima facie* case of invalidity, unenforceability and non-infringement. The morning of August 23rd, I cancelled the meeting after a telephone conference from Ms. Addy's Chicago office to Mr. Swartz's Deerfield, Illinois office.
19. On November 17, 2004, Harman received MIT's written response from Charles G. Call. Mr. Call's letter further accused Harman of infringement by stating that Harman infringed 24 claims.
20. After considering Mr. Call's letter Harman requested a meeting at Harman's Northridge, California office with MIT. On January 19, 2005, Harman met with MIT's Robert Swartz in California.
21. During the January 19th meeting, Harman again supplemented its written presentation of its *prima facie* case of invalidity with additional arguments addressing the 24 claims that MIT had accused Harman of infringing as well as pointing out that Mr. Call's letter used the wrong legal standards.
22. At this meeting, MIT threatened to sue Harman and Harman's customers, including DaimlerChrysler, BMW, Audi and Porsche. Mr. Swartz mentioned the name of Mr. Joe Grear of the firm Stadheim & Grear. Mr. Grear is also a known litigator who frequently handles patent cases on contingency fee arrangements.
23. Also during the January 19th meeting, MIT's Robert Swartz stated that MIT's "attorneys were chomping at the bit" to get this case.
24. At the close of the January 19th meeting, I agreed to a final meeting with MIT's Robert Swartz. I insisted that the meeting include senior members of MIT in addition to Robert Swartz. Mr. Swartz suggested that Harman tour MIT's Media Lab. The parties agreed to a March 14, 2005 meeting at MIT's Media Lab in Cambridge, Massachusetts.
25. On March 14, 2005, I personally attended a meeting with MIT. In addition to myself, Harman was represented by its general counsel, European IP counsel, the vice president of legal affairs for Harman-Becker, the CFO of Harman-Becker, and Ms. Addy. MIT was represented by Robert Swartz, the executive director of MIT's Media Lab, the associate director of the Media Lab, director of finance and a licensing director of MIT's Media Lab.
26. The March 14th meeting started at approximately 9:30 a.m. (EST). MIT refused to consider Harman's *prima facie* showing of invalidity, unenforceability and non-infringement of the '685 patent. MIT demanded that Harman pay a large royalty. The meeting ended at approximately 10:45 a.m. (EST)

27. During the March 14th meeting, MIT demanded that Harman pay an amount that Harman determined to be an unreasonable royalty rate; MIT also threatened that the amount would be "a lot higher" if they [MIT] have to take this to the court system.
28. After the March 14th meeting ended, I called Harman's outside counsel, Kirkland & Ellis, and instructed them to file Harman's complaint against MIT in the Northern District of Illinois.

I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct.

June 10, 2005



Robert P. Hart

Exhibit 7

Analysis of
U.S. Patent No. 5,177,685
and
U.S. Patent No. 6,236,768

Harman International Industries, Incorporated
8500 Balboa Boulevard
Northridge, California 91329

Table of Contents

- I. Analysis of U.S. Patent No. 5,117,685**
 - A. U.S. Patent No. 5,117,685**
 - B. Claim Charts**
 - C. Summary of Analysis**
 - D. References**

- II. Analysis of U.S. Patent No. 6,236,768**
 - A. U.S. Patent No. 6,236,768**
 - B. Claim Chart**
 - C. Summary of Analysis**
 - D. References**



US005177685A

United States Patent [19]

Davis et al.

[11] Patent Number: 5,177,685

[45] Date of Patent: Jan. 5, 1993

- [54] **AUTOMOBILE NAVIGATION SYSTEM USING REAL TIME SPOKEN DRIVING INSTRUCTIONS**
- [75] Inventors: James R. Davis, North Cambridge; Christopher M. Schmandt, Milton, both of Mass.
- [73] Assignee: Massachusetts Institute of Technology, Cambridge, Mass.
- [21] Appl. No.: 565,274
- [22] Filed: Aug. 9, 1990
- [51] Int. Cl.⁵ G01C 21/00
- [52] U.S. Cl. 364/443; 340/988; 364/449; 364/453
- [58] Field of Search 340/988, 989, 990, 995; 364/443, 444, 449, 450, 453, 436
- [56] References Cited

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- | | | | |
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(List continued on next page.)

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"Terminal Back Seat Driver", Technology Review, Jul., 1990, p. 10.

(List continued on next page.)

Primary Examiner—Parshotam S. Lall

Assistant Examiner—Edward Pipala

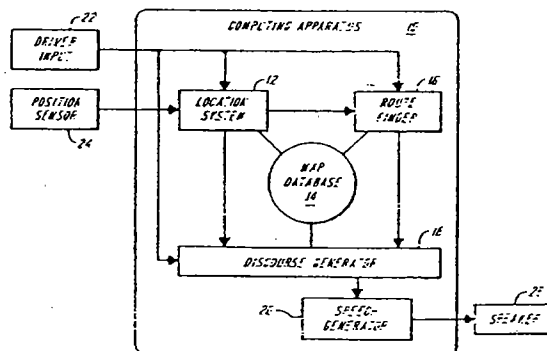
Attorney, Agent, or Firm—Choate, Hall & Stewart

[57]

ABSTRACT

An automobile navigation system which provides spoken instructions to the driver of an automobile to guide the driver along a route is disclosed. The heart of the system is a computing apparatus comprising a map database, route finding algorithms, a vehicle location system, discourse generating programs, and speech generating programs. Driver input means allows the driver to enter information such as a desired destination. The route finding algorithms in the computer apparatus calculate a route to the destination. The vehicle location system accepts input from a position sensor which measures automobile movement (magnitude and direction) continuously, and using this data in conjunction with the map database, determines the position of the automobile. Based on the current position of the automobile and the route, the discourse generating programs compose driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to voice generating apparatus which conveys them to the driver.

58 Claims, 3 Drawing Sheets



5,177,685

Page 2

U.S. PATENT DOCUMENTS

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"On Board Computer System for Navigation, Orientation, and Route Optimization", by P. Haeussermann, Technical Paper Series 840483, Society of Automotive Engineers, 1984.

"Electro Gryo-Cator: New Inertial Navigation System for Use in Automobiles", by K. Tagami et al., Technical Paper Series 830659, Soc. of Automotive Engineers, 1983.

"Navigation Systems Using gps for Vehicles", by T. Itoh, et al., Technical Paper Series 861360, Society of Automotive Engineers, 1986.

"Extending Low Cost Land Navigation Into Systems Information Distribution and Control", by S. K. Honey et al., IEEE Position and Locations Symposium, pp. 439-444, 1986, IEEE 86CH2365-5.

"Map Matching Augmented Dead Reckoning", by W. B. Zavoli et al., Proceedings of the 35th IEEE Vehicular Technology Conference, pp. 359-444, 1986, IEEE CH2308-5.

"Automated Provision of Navigation Assistance to Drivers", by Matthew McGranaghan et al., The American cartographer 14(2):121-138, 1987.

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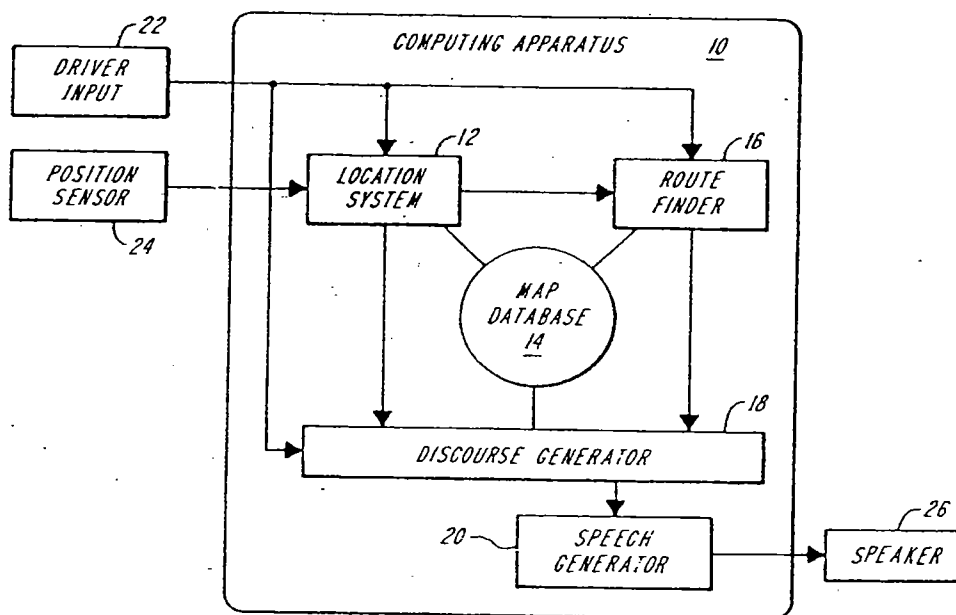


FIG. 1

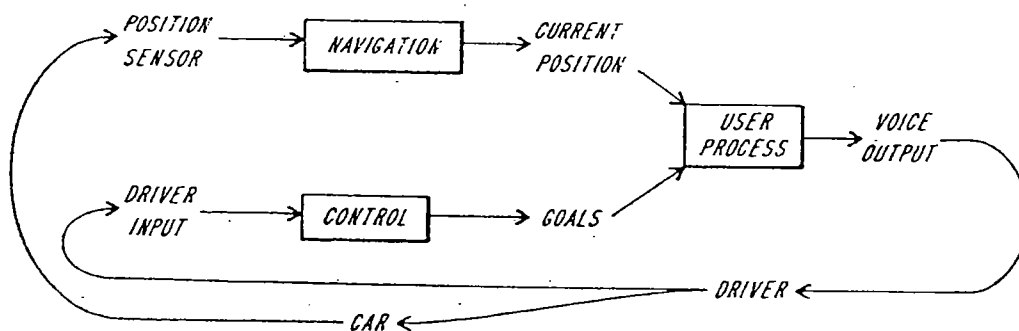


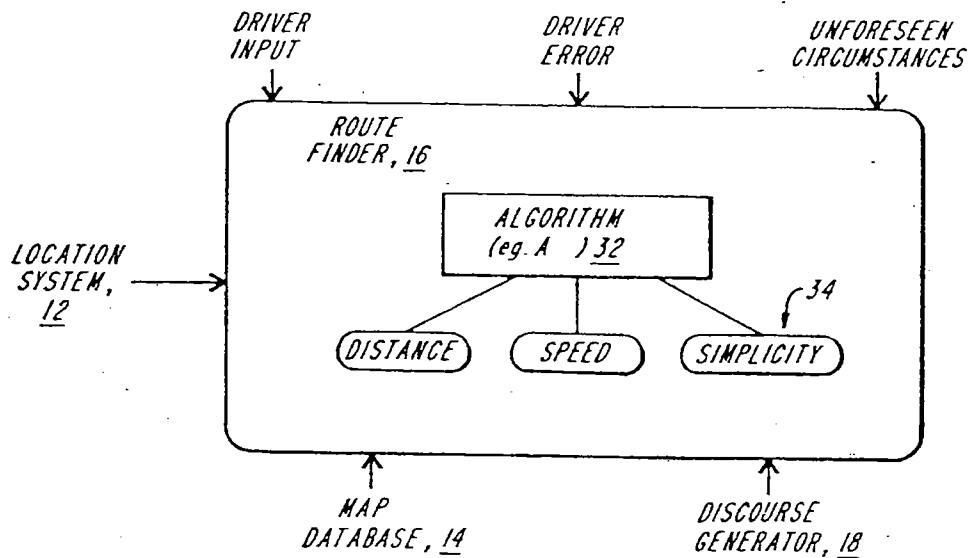
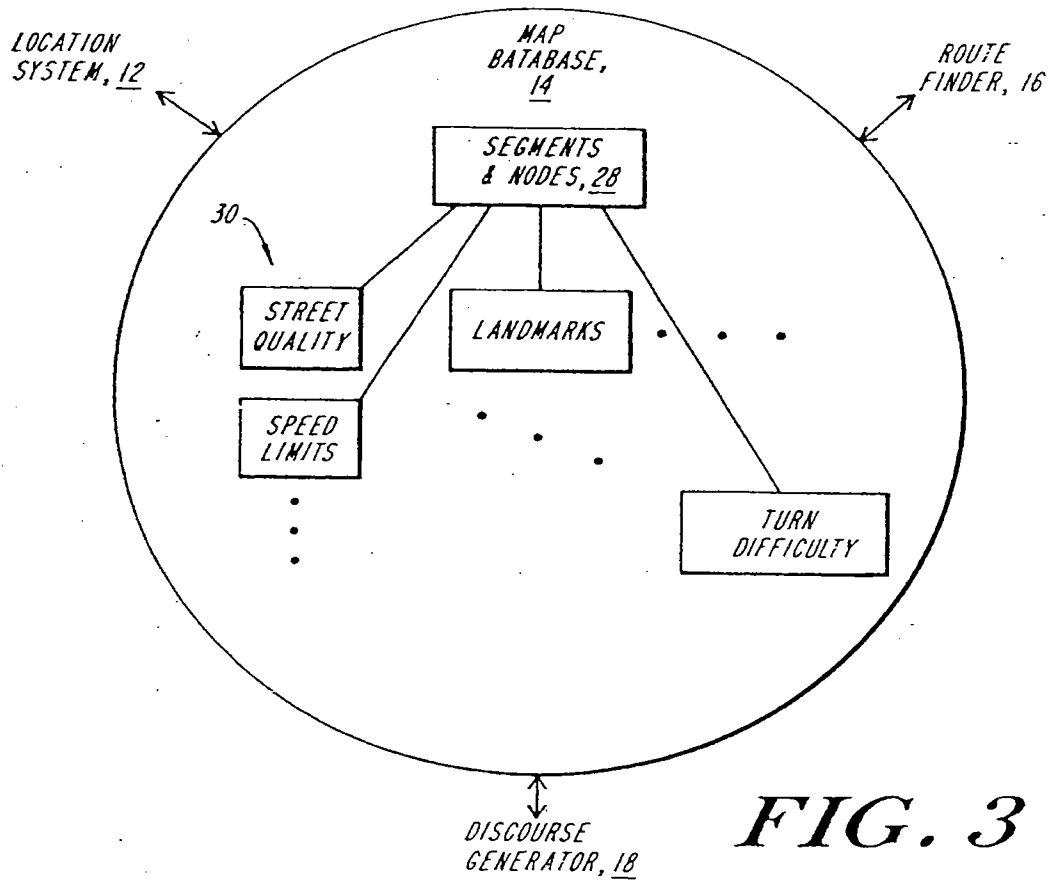
FIG. 2

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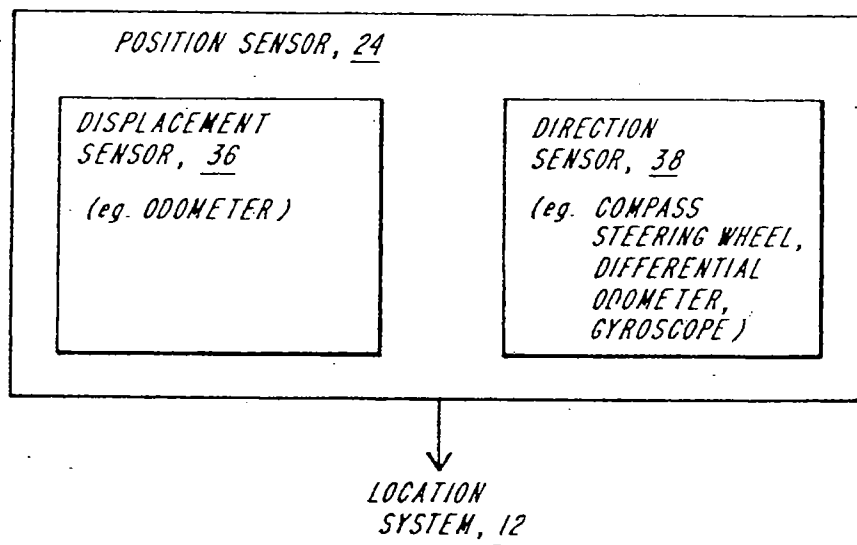


FIG. 5

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AUTOMOBILE NAVIGATION SYSTEM USING REAL TIME SPOKEN DRIVING INSTRUCTIONS

BACKGROUND OF THE INVENTION

This invention relates to computerized automobile navigation systems, particularly to a system which calculates a route to a destination, tracks automobile location, and provides spoken instructions to the driver in real time as they are needed.

Navigation systems can be classified into three categories:

Positioning systems tell you where you are.

Orienting systems show the direction of your destination.

Instructional systems tell you what to do to get to your destination.

A navigation system can provide one, two, or all of these services. Navigation systems can be further distinguished by how they provide the information:

Verbal systems speak.

Textual systems provide text.

Graphic systems provide pictures.

Finally, systems can be classified as either real time or static. The categories of this classification are not independent. There can be no static positioning system, since one cannot predict the future position of an automobile.

There are several problems with static navigation systems. First, they do not help the driver follow the route. The driver must determine when to apply each instruction. A second problem is that since the instructions must be specified in advance, there is little to be done if the driver does not follow the instructions, which might happen from error, or because the instructions are wrong, or simply ill-advised (as when confronting a traffic jam).

Previous automobile navigation systems have used text or graphics to give navigation information. However, there are several disadvantages to presenting information visually. First, the driver must look at a display while driving, which makes driving less safe. For providing driving directions, visual displays are most easily used when they are least needed. Second, with respect to graphic displays, many people have difficulty using maps, making this mode of providing information undesirable. However, if speech is used, the driver's eyes are left free for driving. In addition, speech uses words, and can therefore refer to past and future actions and objects not yet seen. This is hard to do with symbolic displays or maps.

There is clearly a need for an instructional, verbal, real time automobile navigation system which can guide a driver to a destination much as a passenger familiar with the route would. The present invention meets that need.

SUMMARY OF THE INVENTION

The present invention, called the "Back Seat Driver", is a computer navigation system which gives spoken instructions to the driver of an automobile to guide the driver to a desired destination. Computing apparatus, installed either in the automobile or accessed through a cellular car phone, contains a map database and a route finding algorithm. A vehicle location system uses data from a position sensor installed in the automobile to track the location of the automobile. Discourse generating programs compose driving in-

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structions and other messages which are communicated to the driver using voice generating apparatus as the driver proceeds along the route.

The important differences between The Back Seat Driver and other such systems are that the Back Seat Driver finds routes for the driver, instead of simply displaying position on a map, tells the driver how to follow the route, step by step, instead of just showing the route, and speaks its instructions, instead of displaying them. Each of these design goals has required new features in the programs or in the street map database.

The street map database of the Back Seat Driver distinguishes between physical connectivity (how pieces of pavement connect) and legal connectivity (whether one can legally drive onto a physically connected piece of pavement). Legal connectivity is essential for route finding, and physical connectivity for describing the route.

To find the fastest routes, the map database of the Back Seat Driver includes features that affect speed of travel, including street quality, speed limit, traffic lights and stop signs. To generate directions, the map includes landmarks such as traffic lights and buildings, and additional descriptive information about the street segments, including street type, number of lanes, turn restrictions, street quality, and speed limit. The map also preferably includes other features, such as time-dependent legal connectivity, and expected rate of travel along streets and across intersections. Positions are preferably stored in the map database in three dimensions, not two, with sufficient accuracy that the headings of the streets can be accurately determined from the map segments.

Driving instructions generated by the Back Seat Driver are modeled after those given by people. The two issues for spoken directions are what to say (content) and when to say it (timing). The content of the instructions tells the driver what to do and where to do it. The Back Seat Driver has a large taxonomy of intersection types, and chooses verbs to indicate the kind of intersection and the way of moving through it. The instructions refer to landmarks and timing to tell the driver when to act.

Timing is critical because speech is transient. The Back Seat Driver gives instructions just in time for the driver to take the required action, and thus the driver need not remember the instruction or exert effort looking for the place to act. The Back Seat Driver also gives instructions in advance, if time allows, and the driver may request additional instructions at any time. If the driver makes a mistake, the Back Seat Driver describes the mistake, without casting blame, then finds a new route from the current location.

Giving instructions for following a route requires breaking the route down into a sequence of driving acts, and knowing when an act is obvious to the driver and when it needs to be mentioned. This further requires knowledge about the individual driver, for what is obvious to one may not be so to another. The Back Seat Driver preferably stores knowledge of its users, and uses this knowledge to customize its instructions to the preferences of the users.

Speech, especially synthetic speech, as an output media imposes constraints on the interface. The transient nature of speech requires that utterances be repeatable on demand. The Back Seat Driver has the ability to construct a new utterance with the same intent, but not necessarily the same words, as a previous message.

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Synthetic speech being sometimes hard to understand, the Back Seat Driver chooses its words to provide redundancy in its utterances.

An actual working prototype of the Back Seat Driver has been implemented. It has successfully guided drivers unfamiliar with Cambridge, Mass. to their destinations. It is easy to foresee a practical implementation in the future.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 illustrates schematically the basic functional components of the Back Seat Driver in its preferred embodiment.

FIG. 2 illustrates the system processes of the preferred embodiment of the Back Seat Driver.

FIG. 3 is a schematic illustration of the map database.

FIG. 4 is a schematic illustration of the route finder.

FIG. 5 is a schematic illustration of the position sensor.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The automobile navigation system according to the present invention is illustrated schematically in FIG. 1. The heart of the system is a computing apparatus 10 comprising a vehicle location system 12, a map database 14, a route finder 16, a discourse generator 18, and a speech generator 20. Driver input means 22 allows the driver to input to the computing apparatus 10 information such as a desired destination. A position sensor 24 measures automobile movement (magnitude and direction) and sends data to the location system 12 which tracks the position of the automobile on the map. The route finder 16 calculates a route to the destination. Based on the current position of the automobile and the route, the discourse generator 18 composes driving instructions and other messages according to a discourse model in real time as they are needed. The instructions and messages are sent to the speech generator 20 which conveys them to the driver by means of a speaker system 26. The speaker system may be that of the car's radio.

In FIG. 1, the computing apparatus is illustrated as a single entity. However, in other embodiments, the components may not all be implemented in the same piece of apparatus. For example, in one working prototype of the Back Seat Driver, the main computing apparatus is a Symbolics Lisp machine, but the location system is implemented separately by an NEC location system that tracks the position of the automobile using its own map database, and the speech generator is implemented separately by a Dectalk speech synthesizer. In another working prototype, the main computing apparatus is a Sun Sparc workstation. The map database for the Back Seat Driver can be provided on a CD-ROM, a floppy disk, or stored in solid-state memory, for example.

The components of the system and the system processes which coordinate their performance, particularly as embodied in the working prototypes, are discussed in the sections which follow. Aspects of the invention are also described in the following sources, which are hereby incorporated by reference:

1. "Synthetic speech for real time direction-giving," by C. M. Schmandt and J. R. Davis, *Digest of Technical Papers, International Conference on Consumer Electronics*, Rosemont, Ill., Jun. 6-9, 1989.
2. "Synthetic speech for real time direction-giving," by C. M. Schmandt and J. R. Davis, *IEEE Transactions*

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on *Consumer Electronics*, 35(3): 649-653, August 1989.

3. "The Back Seat Driver: Real time spoken driving instructions," by J. R. Davis and C. M. Schmandt, *Proceedings of the IEEE Vehicle Navigation and Information Systems Conference*, Toronto, Canada, September 1989.

4. "Back Seat Driver: Voice assisted automobile navigation," by J. R. Davis, Ph.D. thesis, Massachusetts Institute of Technology, September 1989.

MAP DATABASE

The map database for the Back Seat Driver in the working prototypes originated as a DIME (Dual Independent Map Encoding) file, a map format invented by the U.S. Census Bureau for the 1980 census. Implementing the Back Seat Driver required extending the DIME map format in a number of ways to make it useful for route finding and route describing.

- 20 The basic unit of the DIME file is the segment. A segment is a portion of a street (or other linear feature such as a railroad, property line, or shoreline) chosen to be small enough that it is a straight line and has no intersection with any other segment except at its endpoints.

The two endpoints of a segment are designated FROM and TO. If the segment is a street segment (as opposed to, say, a railroad) and has addresses on it, then the FROM endpoint is the one with the lowest address. Otherwise, the endpoint labels are chosen arbitrarily. A segment has two sides, left and right. The sides are chosen with respect to travel from the FROM endpoint to the TO endpoint. A navigator using a DIME file can find the location of an address along the segment by interpolating the addresses between the low and high addresses for the two endpoints. The DIME file is suited to determining the approximate position of a building from its street address.

Attributes of a DIME file segment include: its name (40 characters), its type (a one to four character abbreviation such as "ST"), the ZIP code for each side, and the addresses for each endpoint and each side. At each endpoint of a segment is a pointer to a node. A node represents the coordinates of that endpoint and the set of other segments which are physically connected at that endpoint. Segments share nodes. If any two segments have an endpoint at the same coordinate, they will both use the same node for that endpoint.

A vehicle navigation system using a DIME file can represent the position of a vehicle on the map by a structure called a position. A position has three parts: a segment, an orientation, and a distance. The segment is one of the segments from the map database, the orientation specifies the direction the vehicle is travelling (towards the TO or FROM endpoint), and the distance is the distance from the FROM endpoint of the segment, no matter which way the vehicle is oriented. When travelling towards the TO endpoint of the segment, distance increases, when travelling towards the FROM endpoint, it decreases.

The DIME file is not adequate for routing finding and is only marginal for generating route descriptions. The most important problem with the DIME format is that it indicates only if two segments are physically connected (that is, if they touch), but not whether they are legally connected (i.e. whether it is legal to travel from one to the other). Legal connectivity is crucial for route finding. However, legal connectivity does not

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replace physical connectivity; route description requires information about physical connections as well. Physical connectivity also affects route finding directly when seeking the simplest route, since ease of description is determined in part by physical connectivity.

The most significant extension of the DIME file format required for its use in a vehicle navigation system is the explicit representation of legal connectivity. This can be accomplished by adding a legal connection list at each endpoint of a segment to indicate all segments which are legally accessible from that endpoint. This allows the route finder to consider only legal paths. To the inventor's knowledge, this has not been included in any other navigation system.

Another problem with the DIME file is that it is a planar graph. This means that no two segments can cross except at an intersection, so there is no way to correctly represent an overpass, for example. The DIME format represents an overpass by breaking both streets at the point where they cross, and creating a fictitious intersection even though the segments do not touch in reality. These false intersections are particularly troublesome since DIME does not represent legal connectivity, so it appears possible and legal for a car to jump straight up and turn onto the overpass.

Points in the map database for a vehicle navigation system are therefore preferably three-dimensional. Route descriptions then provide better knowledge of the underlying topography. Stopping distance is affected by slope, so instructions must be given sooner when traveling down a hill. Slope affects safety. The route finder should avoid steep slopes in snowy weather. Finally, distance between points will be more accurate when change in altitude is considered. Roads designed for high speed may be more level than the underlying topography. They may be elevated or they may be depressed. A road which is not at grade will not have the slope of the land beneath it.

Coordinates in the DIME file are stored in ten thousandths of a degree. This means that the position of an endpoint in the map differs from the true position by as much as 6.5 meters in latitude and 5 meters in longitude at the latitude of Boston. This inherent position error causes problems because it introduces error in length and in heading. Uncertainty in heading causes uncertainty in the angle between two segments. A straight street can appear to wobble if it is made of many short segments. Segment "wobble" causes problems for a route finder, makes it hard to generate correct descriptions, and interferes with position determination.

DIME file segment "wobble" can be corrected for by assuming that the angle between two streets is the smallest possible value. However, this sometimes overestimates the speed an intersection can be travelled through. Uncertainty in the angle of segments at an intersection also makes it difficult to describe the intersection correctly and interferes with navigation because it makes it difficult to compare compass headings with the heading of a street.

A richer taxonomy of street types than that provided by DIME is preferable for a vehicle navigation system. Important categories of streets are: ordinary street, rotary, access ramp, underpass, tunnel, and bridge. Preferably, non-streets such as railroad, water, alley and walkway are also included.

The DIME file records a small amount of information about each segment. For a vehicle navigation system, additional attributes are preferably added to make bet-

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ter descriptions. Important additional attributes are street quality, divided roads, signs, traffic lights, stop signs, buildings, other landmarks, lane information, and speed limit.

The street quality can be, for example, a number from 1 ("super") to 4 ("bad") which combines the ease of locating and following the street and the expected rate of travel along it. The street quality attribute should be used by both the route finder and the route describer.

The identification of divided roads is necessary to avoid U Turns where they are not possible, although it is preferable to make U Turns only if there is no other alternative. In addition, the route finder should recognize that a divided road is safer than an undivided road.

Sign and exit numbers are preferably stored in the map database as connection cues, which are text strings that give cues for moving from one segment to another. Every cue has a type which tells the kind of cue, e.g. sign or exit-number. There may be more than one connection cue for a given pair of segments, but there should never be more than one of a type.

The most useful landmarks are traffic lights. Traffic lights are preferably stored independently for each endpoint of each segment, since the presence of a light at one segment of an intersection does not imply that all other segments at the intersection have a light.

Two types of buildings which are especially useful as landmarks are toll booths and gas stations. Toll booths can be stored as connection cues. Gas stations can be stored in the services database described below. However, a preferred approach is to index gas stations (and other buildings) by street.

Roads often have more than one lane. Selecting the proper lane can make travel faster, and it may even be mandatory, since certain turns may only be possible from some lanes. The map database therefore preferably contains the number of lanes for both directions on a segment, and whether one or more lanes is reserved for turn restrictions.

The map database also preferably includes time dependent legal connectivity. Sometimes a given turn will be prohibited at certain hours of the day, typically rush hour. Additionally, lanes sometimes switch direction during the day to accommodate rush hour traffic, and some lanes are reserved for carpools during rush hour.

The expected rate of travel is not necessarily a function of street quality. Although there is a correlation, travel rate is preferably a separate segment attribute. One reason is that travel rate, unlike quality, changes during the day. A model of traffic flow like that of an experienced driver (i.e. it should know what "rush hour" means) is preferably implemented in the map database.

Some turns, though legal, are difficult to make. The route finder preferably avoids these turns if possible. To an extent, the difficulty of a turn is implicit in the quality of the participating street segments, but an explicit model in the map database is preferred.

Some lanes or streets are restricted to certain kinds of traffic (car pools, no commercial vehicles). Also important are height restrictions, since some underpasses are so low that tall vehicles will not fit under them. This information is preferably included in the map database.

At some lights it is permitted to make a right turn at a red light after a full stop. Right turns here will be no slower than rights turns at a stop sign, so the route finder should prefer such intersections to those that do not permit it. Also, traffic lights have differing cycle

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lengths. The map database preferably includes this information.

Local knowledge is also preferably included in the map database. These are facts about how people and institutions act on or near the road; e.g. that a speed trap is here, or that this road is one of the first ones plowed after a snow storm.

The Back Seat Driver should allow the driver to select famous destinations by name in addition to address by including this information in a database, and this database should be integrated with the services database, discussed below. The Back Seat Driver should also support names of buildings and office plazas made up by developers without reference to the street names.

Service locations are preferably stored in a services database. This database lists services such as gas stations, automatic teller machines and stores. For each service is recorded the name of the establishment, the address, phone number, and hours of operation. This allows the Back Seat Driver to select the closest provider of a service known to be open. The database can also be used as a source of landmarks when giving directions.

The map database preferably contains information on the division of the city into neighborhoods. This is useful for selecting an address. The postal ZIP code is not good for classifying neighborhoods.

Pronunciation information is preferably stored in a database for those place names which are easily mispronounced by the speech synthesizer. It would also be desirable to record which of those names have unusual spellings. This would allow the system to warn the driver to be alert for signs that might otherwise surprise her. Note that the driver only hears the name of a street, and has to guess how it is spelled from the sound she hears.

Abbreviations are preferably included to allow the user to enter certain street names in abbreviated form. A second use for abbreviations is to supply alternate spellings for streets. For example, to allow the driver to spell "Mt Auburn" as "Mount Auburn".

An almanac is preferably included to list the time of sunrise and sunset for the city. Arrangements can be made to either purchase this database or locate a program which can calculate it, for arbitrary position and date.

A problem for a practical Back Seat Driver is how to keep the map database accurate, since the streets network is constantly changing. Over time, new street are constructed, old streets are renamed or closed. These kinds of changes are predictable, slow, and long lasting. Other changes are unpredictable, quick, and transient. A road may be closed for repairs for the day, blocked by a fallen tree, or full of snow. Such changes are usually short lived. Thus, the Back Seat Driver needs the ability to change legal connectivity dynamically. In addition, the route finder should preferably have the ability to avoid congested roads caused by rush hour or accidents, for example. The map database is therefore preferably continuously updated by some form of radio broadcast by an agency that monitors construction and real time traffic conditions.

The Census Bureau, in cooperation with the United States Geological Survey, has designed a new map format known as TIGER (Topologically Integrated Geographic Encoding and Referencing) which has several improvements over the DIME format, but

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which is still a planar graph representing only physical connectivity. The map database for a Back Seat Driver could be also be originated from a TIGER file as long as the extensions discussed above were implemented.

The map database is shown schematically in FIG. 3. In the preferred embodiment, the map database 14 includes, as its basis, a file 28 of segments and nodes. File 28 may be an original file or may be adapted from a DIME file or a TIGER file by adding the above-described extensions. In addition, the map database 14 may include optional features 30, as described above.

ROUTE FINDER

Finding a route between two points in a street network is an example of searching a general graph. The task is to find a sequence of segments that lead from the origin to the destination. There are usually a great many distinct ways of getting from one place in the city to another, some better than others. Graph search algorithms differ in the quality of the solution they find and the time they require. The Back Seat Driver requires an algorithm that finds a good route in a short time.

The route finder of the working prototypes of the Back Seat Driver is based on an A* search algorithm. The A* algorithm is a form of best-first search, which itself is a form of breadth-first search. These searching techniques are well-known and are described in detail in Davis, 1989, cited above.

In a breadth-first search, a tree of all possible decisions is divided into levels, where the first level actions are those leading from the root, the second level actions are those that come from situations after first level actions, and so on. All actions at a given level are considered before any at the next higher level. While the breadth-first search is operating, it maintains a list of all possible partial routes and systematically examines every possible path from the end of every partial route to compile a new list of partial routes. This search procedure finds the path with the fewest segments. However, this is not necessarily the best path. To be sure of finding the best path, the search cannot stop when the first path is found, but must continue, expanding each path, until all paths are complete. This is not at all desirable, since there could be (and in fact will be) many paths.

The best-first algorithm solves this problem by keeping track of the (partial) cost of each path, and examining the one with the smallest cost so far. This requires a function that can compare two routes and produce a numeric rating. Such a function is called a metric. To further reduce the cost of searching, before adding a segment to a path, the best-first search checks to see whether it is a member of any other path. If it is, it is not added, for presence on the other path means that the other path was a less expensive way of reaching the same segment.

Best-first search finds the best solution and requires less time than exhaustive breadth-first search, but it still must consider partial solutions with an initial low cost which prove expensive when complete. The A* algorithm avoids wasting time on such falsely promising solutions by including an estimate for the completed cost when selecting the next partial solution to work on. The cost estimate function is $f^*(r) = g^*(r) + h^*(r)$, where r is a route, $g^*(r)$ is the known cost of the partial route, and $h^*(r)$ is the estimate of the cost to go from the end-point of the route to the goal. The h^* function must have the property of being always non-negative and

never over-estimating the remaining cost. An h^* meeting these two conditions is said to be admissible. It should be obvious that if h^* is chosen to be always zero, then A^* search is just best-first search. In applying A^* to finding routes on a map, h^* is just the cartesian distance between the endpoint of the partial route and the destination point. It is certain that no route will be shorter than the straight line, so this estimate is never an over estimate. A^* search is more efficient than best-first.

The A^* algorithm finds the optimum route, but the Back Seat Driver might be better served with an algorithm that finds a reasonable route in less time. This is especially true when the vehicle is in motion. The longer the route finder takes, the greater the distance that must be reserved for route finding. As this distance becomes larger, it becomes harder to predict the future position of the car. This can be done by choosing an h^* which multiplies the estimated distance remaining by a constant D . Setting D greater than one makes h^* no longer admissible, since the estimate might exceed the actual cost by a factor of D . The resulting routes are no longer optimal, but are still pretty good. The effect is to make the algorithm reluctant to consider routes which initially lead away from the goal.

The route finder preferably uses a value of 2 for D . This yields the greatest increase in payoff. A possible improvement is to run the route finder twice, first with a high value of D to find an initial route in order to begin the trip, and then with a low D to search for a better route, using spare time while driving.

Preferably, three different metrics are used. The distance metric finds the shortest route, the speed metric finds the fastest route, and the ease metric finds the easiest route. The metric for distance is just the sum of the lengths of the component segments. The other two metrics are more complicated than the distance metric, because they must consider intersections as well as segments. In general there is a cost to travel along a segment and a cost to get from one segment to another. All costs are expressed as an "equivalent distance" which is the extra distance one would travel to avoid the cost.

The metric for speed estimates the cost for traveling along a segment by multiplying its length by a constant which depends upon the quality of the street. In principle, one could calculate expected time by dividing length by the average speed on the segment were this quantity available in the database. Examples of appropriate constants are:

Quality	Factor
super	1
good	1.2
average	1.5
bad	2.0

All multiplicative constants must be greater than or equal to one to ensure that the cost of a route is never less than the straight line distance between two points. This condition is essential for the correct operation of the A^* search algorithm, since the estimation function (g^*) must always return an under-estimate.

The time to cross an intersection is preferably modeled by a mileage penalty which depends upon the nature of the intersection. Examples of appropriate penalties are:

Factor	Cost	Reason
turn	1 mile	Must slow down to turn
left turn	1 mile	May have to wait for turn across traffic flow
traffic light	1 mile	Might be red

If the segment is one-way, the penalties should be cut in half, since there will be no opposing traffic flow. The turning penalties should be computed based only on the angle between two segments, not on the segment type or quality.

The metric for ease seeks to minimize the driver's effort in following the route. Again, driver's effort is the sum of the effort to travel along a segment and the effort to get from one segment to another. Travel along a segment depends upon its quality. Turns of every sort should be penalized equally, since they all require decisions. The intention of this metric is to find routes which require the least amount of speaking by the Back Seat Driver, leaving the driver free to concentrate on other matters.

If the driver leaves the route, the Back Seat Driver must immediately inform the driver and begin to plan a new route. Route planning after a mistake is no different from any other time, except that the vehicle is more likely to be moving. In the working prototypes, when the car is moving, the Back Seat Driver first estimates the distance the car will travel during the route finding process by multiplying the current velocity by the estimated time to find the route. Then it finds the position the driver will reach after traveling this distance, assuming that the driver will not make any turns without being told to do so. It then finds a route from this extrapolated position to the goal. Finally, it finds a route from the car's actual position to the estimated starting position. This second route is so short that the car is unlikely to move far during the time it is computed.

The route finder of the working prototypes estimates the time to find the route between two points by multiplying the distance between them by a constant. This constant was initially determined by running the route finder for 20 randomly selected pairs of origins and destinations. As the Back Seat Driver runs, it accumulates additional values for the constant.

A problem is how to reliably detect when the driver has left the route. With the extended DIME format of the working prototypes, if the driver turns into a gas station, for example, the system will believe, falsely, that the driver has turned onto some street, because the street map includes only streets, and not other paved areas such as parking lots and filling stations. From this false belief, the system will conclude that the driver has made a mistake. However, this problem can be solved by increasing the detail of the map.

Sometimes the driver will choose to not follow a route for good reasons that the Back Seat Driver is unaware of, perhaps because the road is blocked or because of a traffic jam. For the first case, the driver should be provided an "I Can't Do It" button or other means to inform the Back Seat Driver that the road is (temporarily) blocked. Once informed, the Back Seat Driver must automatically find a new route. For the second case, the driver's only recourse is to cancel the current trip (by pushing another button, for example), and, once out of the situation, re-request a route to the original destination. It is essential, though, that the

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driver either notify the Back Seat Driver of the impossibility of the requested action or cancel the trip, because otherwise the Back Seat Driver will treat the deviation from the route as a mistake, and continue to attempt to find a new route, which may very well lead back through the street the driver is trying to avoid.

The route finder is shown schematically in FIG. 4. In the preferred embodiment, the route finder 16 includes, as its basis, an algorithm 32. Algorithm 32 may be, for example, an original algorithm based on a best-first search algorithm the A* algorithm, or a modified A* algorithm. In preferred embodiments, the route finder is adapted to find the best route according to any one of three cost metrics 34: distance, speed, simplicity. The route finder calculates a new route in the event of driver error or unforeseen circumstances, as indicated.

LOCATION SYSTEM AND POSITION SENSOR

The Back Seat Driver must know the position of the vehicle. This can be achieved using available technology adapted for the requirements of the Back Seat Driver. At a minimum, the location system for a vehicle navigation system must determine the vehicle position to the nearest block. If it is to tell the driver when to turn, it must be able to distinguish between the closest of two adjacent turns.

Consideration of the Boston street map shows that it has many streets which are both short and a possible choice point. Based on a study of the percentage of segments which are shorter than a given length, an accuracy of 10 meters is desirable. This is a higher accuracy than has been specified in prior art approaches (see Davis, 1989, cited above). The Back Seat Driver's use of speech imposes strict requirements on position because of limitations on time. Unlike a display, speech is transient. An action described too soon may be forgotten. The Back Seat Driver is intended to speak at the latest time that still permits the driver to act. Allowing two seconds for speech, a car at 30 mph covers 27 meters. This consideration suggests a minimum accuracy of 15 meters.

Location systems can be divided into two categories: Position finding systems determine position directly by detecting an external signal.

Position keeping (dead reckoning) systems estimate the current position from knowledge of an earlier position and the change in position since that position.

All existing position finding systems use radio signals. The broadcast stations may be located on street corners, seacoasts, or in orbit around the earth. Systems differ in their range, accuracy, and cost. A survey of those systems which might plausibly be used for automobile navigation is included in Davis, 1989, cited above.

Position keeping (dead reckoning) systems obtain position indirectly, by keeping track of the displacement from an originally known position. One can measure displacement directly, or measure velocity or acceleration and integrate over time to obtain displacement.

The forward motion of a car is measured by the odometer. On late model cars, the odometer cable has been standardized. It revolves once every 1.56 meters. This is a reliable measure of forward progress, as long as the wheels do not slip. Measuring direction, though, is more difficult. Among the possibilities are:

magnetic compass A magnetic compass has the advantages of small size and ease of use, but is unreliable because of variation between magnetic and true north

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and deviation due to the ferrous material of the car and magnetic flux arising from electric currents within the car.

steering wheel The steering wheel could be instrumented to measure the amount of turning.

differential odometer When a car turns, the two rear wheels travel different distances, and thus rotate at different rates. Measuring the difference in rotation provides an indication of amount of turning. This differential rate of rotation is just what is measured by anti-skid brakes, so no additional instrumentation is required to obtain this measure for an automobile suitably equipped.

gyroscope Gyroscopes measure angular acceleration.

The familiar rotation gyroscope and esoteric laser ring gyroscope are not suitable for automotive use because they are too expensive. Lower cost alternatives are the rate gyro and the gas jet gyro. The rate gyro measures angular acceleration in a vibrating piezo-electric substance. The gas gyro measures turn (or yaw) rate. In this design, a jet of gas travels down the center of a sealed tube. Anemometers are placed on either side of stream. When the car turns, the stream is deflected and the velocity is measured. The velocity of the gas at the anemometer is proportional to the turn rate. Such devices can measure turn rates of up to 100 degrees per second, with a noise of about one half degree/second.

The position sensor is shown schematically in FIG. 5. As indicated, it includes a displacement sensor 36 and a direction sensor 38.

A position keeping system with no error could be calibrated when installed, and then maintain its own position indefinitely. Unfortunately, errors arise in measuring both distance and heading. Sources for error include difference in tire pressure, composition and wear, slipping, cross steering from winds, change in tire contact path in turns, magnetic anomalies, and gyro noise. The NEC dead reckoning system, employed in the prototypes of the Back Seat Driver, accumulates about one meter of error for every ten meters traveled. The error is even worse when traveling near railroads because the NEC system uses a magnetic compass.

Some dead reckoning systems recalibrate themselves to eliminate systematic errors. Such recalibration is possible when the vehicle is at a known position or when stopped. One way to correct dead reckoning errors is to use knowledge of the road network as a constraint on position, in what is known as map matching. Map matching requires that the position keeping system have a map of the locale where the vehicle is being driven, and is based on the assumption that the vehicle is always on a street present in the map. If the estimated position falls to one side of the road, the estimate can be corrected. When the vehicle makes a turn, the system assumes the vehicle is at the closest intersection, and thus the absolute position can be estimated. Every dead reckoning system uses some form of map matching. Map matching reduces the stringency of position keeping, but accuracy remains a concern, since the system must maintain its position when the driver drives off the map, e.g. into a driveway or a parking lot.

In the working prototypes, a unit built by NEC Home Electronics, Ltd. is employed. It is a dead-reckoning position keeping system which uses speed and direction sensors. To compensate for error, it uses map matching on a map database stored on CD-ROM. The unit is described in "CD-ROM Assisted Navigation

Systems" by O. Ono, H. Ooe, and M. Sakamoto, in *Digest of Technical Papers, IEEE International Conference on Consumer Electronics*, Rosemont, Ill., Jun. 8-10, 1988.

As implemented in the working prototypes, the map database used by the location system is completely distinct from the map database used by the route finder and discourse generator. This is unfortunate since the maps will not always agree unless they are kept equally up-to-date. However, in other embodiments within the scope of the invention, the location system uses the computing resources and map database of the main computing apparatus illustrated in FIG. 1. Positioning systems for the Back Seat Driver preferably combine position keeping and position finding, since neither alone will work all the time. A position keeping system needs periodic corrections, but a position finding system that depends on radio reception will not work in tunnels or bridges. Hybrid systems which could be used by the Back Seat Driver are referenced and discussed in Davis, 1989, cited above.

DISCOURSE GENERATOR

The Back Seat Driver attempts to provide instructions to the driver as a passenger in the car familiar with the route would. The content and timing of the instructions and other messages described below are based on a study of natural driving instruction described in detail in Davis, 1989, cited above.

To the Back Seat Driver, a route is a sequence of street segments leading from the origin to the destination. Each connection from one segment to another is considered an intersection, even if there is only one next segment at the intersection. At any moment, the car will be on one of the segments of the route, approaching an intersection. The task of the Back Seat Driver is to say whatever is necessary to get the driver to go from the current segment, across the intersection, to the next segment of the route. Most often, nothing need be said. But at other times, the Back Seat Driver will need to give an instruction.

Instructions must use terms familiar to the driver. An example is what to say at a fork in the road. Considering only topology, there is no difference between a fork and a turn, but it would be confusing to call a fork a turn.

The two key issues in describing a route are deciding what to say and deciding when to say it. There is a tradeoff between these two factors. At one extreme are directions given completely in advance, with no control over when the driver reads them. A direction of this kind might be: "Go half a mile, then take a left onto Mulberry Street". A driver following such an instruction must use the odometer to estimate distance or look for a street sign. The instruction itself does not say when to act. The other extreme are instructions which rely totally on timing for success. Such an instruction might be: "Turn left now".

An intersection type is called an act because the important thing about an intersection is what action the driver takes to get across it. The Back Seat Driver is preferably implemented with an object-oriented programming methodology, so for each act there is an expert (an object) capable of recognizing and describing the act. The Back Seat Driver generates speech by consulting these experts. At any moment, there will be exactly one expert in charge of telling the driver what to do. To select this expert, the Back Seat Driver asks each expert in turn to decide whether it applies to the

intersection. The experts are consulted in a fixed order, the most specific ones first. The first expert to claim responsibility is selected. This expert then has the responsibility of deciding what (if anything) to say.

Each act has a recognition predicate which is used to determine if a given intersection should be classified as that act. A predicate can consider topology, geometry, the types of street involved, or any other factor. The predicate also decides whether the move is obvious, that is, the driver can be trusted to do it without being explicitly told to do so. Actions that are obvious are not described. If the next action is obvious, the Back Seat Driver looks ahead along the route until it finds one which is not obvious. There will always be at least one, because stopping at the end is never obvious.

The acts in the working prototypes include CONTINUE, FORCED-TURN, U-TURN, ENTER, EXIT, ONTO-ROTARY, EXIT-ROTARY, STAY-ON-ROTARY, FORK, TURN and STOP.

A CONTINUE is recognized when the driver is to stay on the "same" road. Almost always, a continue is obvious and nothing should be said. The continuation of a street depends on the type of street: from a rotary, it is the next rotary segment; from an access ramp, if there is exactly one next segment, that is the continuation, otherwise there is no obvious next segment; otherwise, it is the one segment that requires no more than 30 degrees of angle change (if there is exactly one, and if it is not a rotary) or the one segment with the same name (if there is exactly one). The reason for comparing names is not because the driver is aware of the name, but because the designer who named the street was. The assumption is that if two segments have the same name, they are the same street, and that is why they have the same name. This "sameness" is presumably reflected in details not captured by the map, for example continuity of painted centerline. There are many places in the area where the obvious "straight" continuation of a segment is at an angle as great as 45 degrees, but it would not be right to call this a turn.

A FORCED-TURN is an intersection where there is only one next street segment where the road bends more than 10 degrees. Even though there is no decision to make at a forced turn, it is useful to mention because it strengthens the driver's sense that the Back Seat Driver really knows about the road conditions. A forced turn is not worth mentioning if both segments are part of a bridge, a tunnel, or an access ramp, or if the angle is less than 20 degrees.

The U-TURN action is recognized when the heading of the car is the opposite of what it should be. Recall that a route is a sequence of segments and endpoints. At all times the car will be on one of the segments in the sequence. If the car's orientation is not the same as the endpoint in the path, then the driver must turn around. Preferably, the route finder only calls for a U Turn if there is no other way.

To ENTER is to move onto a super street (or an access ramp that leads eventually to a super street) from an ordinary street, but not from a super street or an earlier access ramp. Similarly, to EXIT is to move from a super street onto a street with lesser quality that is either an access ramp or has a different name. Some super streets are not uniformly super and it would not be right to call the change in quality an exit.

To go ONTO-ROTARY, to STAY-ON-ROTARY, and to EXIT-ROTARY are acts which can be correctly

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described only if the street map database includes an explicit marking of streets as rotaries.

At a FORK, there must be at least two alternatives, all within a narrow angle, and none of the branches must be the obvious next segment—that is, the branches must all be more or less equal. Either all the alternatives must be access ramps, or none of them must be. A branch can only be considered obvious if it is the only branch with the same level of quality, or if it is markedly straighter than the others, or if it is the only one with the same number of lanes, provided that all of these clues agree. If one branch is stronger than the others, the intersection is not a fork. It is either a continue or a turn.

The STOP action is recognized when the vehicle is on the destination segment. Finally, a TURN is an intersection not handled by one of the above cases. The greatest weakness of the above approach is that the recognition predicates are sensitive to small changes in the angles between segments. It is not likely that people use absolute numbers (e.g. 10 degrees) as cut-off values for their determination of how to describe an intersection. More likely, different classifications compete. Still more important, people making classifications use visual cues, not just facts from the map.

Each act has a description function to generate a description of the action. The description function takes inputs specifying the size of the description (brief or long), the tense (past, present or future), and the reference position. A short description is the minimum necessary for the act. It is typically an imperative (e.g. "Bear left."). A long description includes other facts about the action, an expression indicating the distance or time until the act is to be performed, and possibly information about the next act, if it is close. The reference position is a position (along the route) from which the action is to be described.

A brief description consists only of a verb phrase. The verb depends on the type of act and perhaps on the specifics of the act. Besides the verb itself, the verb phrase must say which way to go. In most cases, the word "left" or "right" is sufficient. Where it is not, the possibilities are to use a landmark or to describe the turn. A landmark can be either in the appropriate direction ("towards the underpass") or the other direction ("away from the river"). Specifying direction with a landmark has the advantage that some drivers confuse left and right sides, or mishear the words, so it is a redundant cue. Also, it increases the driver's confidence that the system really knows what the land looks like. A description of the turn can mention either quality or the relative angle of the desired road. The angle must be described qualitatively (more or less "sharp"). It would be more precise to use the angular distance (e.g. "turn right 83 degrees"), but drivers would not understand it. Preferably, the expert for each act follows a protocol which includes:

recognize?—is a proposed movement an example of this kind of driving act?

instruction-vp—generate a verb phrase describing this act

instruction-np—generate a noun phrase describing the act

position-to-doit—the position where the driver would begin carrying out the act

obvious?—would the driver do this act without being told?

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sentences—generate all sentences needed to describe this act

congratulate?—should the driver be congratulated after carrying out this kind of act

The following sample is a Back Seat Driver description of the left turn from Fulkerson Street to Main Street in Kendall Square, Cambridge, Mass.:

Get in the left lane because you're going to take a left at the next set of lights. It's a complicated intersection because there are two streets on the left. You want the sharper of the two. It's also the better of them. After the turn, get into the right lane.

This instruction begins with a piece of lane advice, an action to be taken immediately, then describes an action in the near future. The action is a turn, though that word is not used explicitly. It tells the direction of the turn (left) and specifies a landmark (the lights) that says where the turn is. In many cases, this would be enough, but here there are two streets on the left, so the instruction goes on to specify the desired road in two ways (by comparative position and relative quality). Finally, it concludes with some lane advice to be executed during (or just after) the act.

The above example is the most complicated text that the Back Seat Driver prototypes have produced. Length and detail are not virtues in giving directions. The Back Seat Driver produces a text this long only because it does not have better means to make the driver follow the route. If a shorter text would accomplish the same aim, it would be better.

Besides telling drivers what to do, the Back Seat Driver must also tell them when to do it. One way to do this is by speaking at the moment to act, but it is useful to also give instructions before the act, if time permits. This allows time for preparation, if required, permits the driver to hear the instruction twice, and also spares the driver the need to be constantly alert for a command which must be obeyed at once.

When an act is more than a few seconds in the future, The Back Seat Driver uses a long description, which includes one or more cues which either describe the place for the act, the features of the road between the current location and the place, or the distance or time until the act. This description should be so clear that the driver cannot only recognize the place when it comes, but can also be confident in advance that she will be able to recognize the place.

The Back Seat Driver preferably uses a landmark as a cue when it can. A numeric distance is the cue of last resort. However, some drivers prefer to also hear distances, especially if the distance exceeds a certain threshold. Therefore, a parameter is preferably included in the user-model, described below, for this minimum distance expressed as a number. If the distance is below this, a qualitative phrase is produced by the discourse generator, if above, a number is produced. The cutoff can be zero, in which case numbers are always used, or set to an infinite value, in which case they never are.

A cue is expressed either as a full sentence ("Drive to the end of the street, then . . .") or a preposed preposition phrase ("At the next set of lights, . . ."). Research has shown that a cue should not be expressed by a preposition after the verb as in "Take a left at the lights," because some drivers start to take the left as soon as they hear the word "left". This may be because syn-

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thetic speech does not provide enough intonational cues for the driver to reliably predict the length of the sentence, leading the driver to act on syntactic information alone, and thus taking the sentence to be complete as soon as the word "left" is heard.

The description of a road feature depends upon whether or not it is visible. If it is, it can be referred to with a definite article ("the rotary", "the overpass"). If not, an indefinite article is used. The program cannot tell whether an entity is actually visible, so it uses distance as an approximation. If the feature is closer than one tenth of a mile, it is considered to be visible.

A special case of cues is when the driver is at the place to act. When stopped a few meters from the intersection, it is wrong to say "Turn at the next lights" even if it is literally true. In the working prototypes, the Back Seat Driver thinks of itself as being at that intersection if it is less than thirty yards away, except that if there is a stop light at the intersection and the car is not moving, then the intersection distance is fifty yards, since cars might be backed up at such an intersection. When at an intersection, the Back Seat Driver should say "Take a left here" rather than "Take a left now" because drivers waiting for a traffic light will rightly resent being told to do something they have good reason not to do.

Traffic lights are very good landmarks because they are designed to be easily seen and drivers have an independent reason to watch for them, namely a desire to avoid accidents. When referring to a traffic light, if the car is at the intersection for the lights, the Back Seat Driver should use a proximal deictic ("this" or "these", as opposed to the distal "that" or "those") to show it means the lights that are here.

The Back Seat Driver preferably has a database of buildings as part of its directory of services. If it finds a building on the corner, it should include it as a potential landmark: e.g. "Look for Merit Gas on the left side".

Other landmarks are features of the road, such as underpasses, bridges, tunnels, bends in the road, and railroad crossings. Still another potential landmark is the road coming to an end. This is a landmark that is impossible to miss. However, research has shown that if the Back Seat Driver says "Drive all the way to the end, then . . .," some drivers take "the end" to mean not "the farthest you can go along this road" but just "the next intersection".

A street name can be a landmark, but not a good one, unless the driver already knows the street. There are several reasons why street names should not be used. First, the driver may not hear the name correctly. Second, the driver may hear the name, but not know how to spell the name after hearing it, so she may not recognize the name in its printed form. This is especially a problem when the driver is from out of town. Finally, even if the driver knows the spelling, street signs are often missing, turned around, or invisible due to weather or darkness. Despite all the problems that come with using street names, many drivers ask for them. To accommodate them, a parameter in the user-model is preferably included to control the use of names. If set, names are supplied as part of the instruction. When names are included, they are preferably attached at the end of the instruction ("Take the second left. It's Elm Street.") rather than directly ("Take the second left onto Elm Street."), which weakens their salience somewhat, and makes them more of a confirmatory cue than an essential one.

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Signs can be important landmarks. A problem with using signs as cues occurs, however, if the information in the sign is stored as unstructured text in the map database. It is important that the Back Seat Driver understand what the sign says, not simply utter the words. There are two reasons for this. First, the Back Seat Driver's internal representation for text is preferably based on syntactic structure, not text strings. Second, the objects mentioned in the signs (cities and roads) should be entered into the discourse model to become salient for future reference. The Back Seat Driver should parse sign text by separating it into tokens delimited by commas and the word "and", and then attempt to recognize objects on the map (street names, cities, neighborhoods) from these tokens. When recognition fails, the token cannot be entered into the discourse model: When parsing fails, the spoken output will have incorrect grammar.

The Back Seat Driver does not assume that the driver will recognize the place to act (e.g. by seeing a street sign) so the driver must be told when (or where) to act. The Back Seat Driver uses timing ("Take a left here") when the driver has reached the place to act. The working prototypes calculate the place to speak by finding a distance from the intersection which is $v * (t_{speak} + t_{reaction})$, where t_{speak} is the time to speak the utterance and $t_{reaction}$ is the driver's reaction time. The time to speak depends on the number of words in the utterance. (The Dectalk synthesizer used in the prototypes speaks 180 words per minute.) Reaction time can be estimated to be two seconds.

The Back Seat driver speaks autonomously, but preferably provides means to allow it to speak on demand. The driver at any time should be able to ask for instructions immediately by, for example, pushing buttons representing "What next?" and "What now?". In addition, while following a route, a driver should be able to ask to hear the total length of the route and the remaining distance. A driver should also be able to ask to hear the name of the street the car is on and the compass direction the car is headed.

In order to generate more fluent text, the Back Seat Driver preferably keeps track of what has been mentioned. Some instructions are obvious after having been given. If the system tells the driver to go straight through a set of lights, there is no reason to repeat the instruction when actually at the lights. This is in contrast with a turn, where the driver hears advance instructions to know what to do, and immediate instructions to know when to do it. This can be important, for if the driver hears "go straight through the lights" twice, she may try to go through two sets of lights. To implement this, each instruction should be able to determine whether it is obvious after having been given once. When it is time to speak the instruction, if the instruction has already been given, and it is obvious once spoken, then it should not be spoken again.

The Back Seat Driver preferably retains a history of the route. This allows it to generate cue phrases for the instructions. If the route calls for doing the same thing twice in a row, the system uses the word "another" to indicate this doubling. This is important for polite behavior. If a passenger were to give a driver instructions by just saying "Take a right. Take a right. Take a left. Take a right.", pronouncing each the same, the passenger would be judged to be rude. The passenger's speech is not acknowledging the driver's actions or history. There are two ways for the passenger to acknowledge

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the driver's work: using cue words ("Take a right. Take another right. Now take a left."), or using intonation. However, some speech synthesizers, such as the Dec-talk used in the prototypes, does not support flexible control of intonation, so cue words are the only possibility.

The Back Seat Driver preferably is able to warn the driver about dangers which can be inferred from knowledge of the road network. These dangers include driving above the speed limit, driving the wrong way on a one-way street, driving too fast for an upcoming curve, driving on a one-way street that becomes two-way ahead, merging traffic, "blind" driveways ahead, speed traps, poorly repaired roads, potholes, and dangerous intersections. The Back Seat Driver preferably attempts to determine hazards by reasoning about road conditions rather than requiring them to be built in to the map database.

Lane advice includes telling the driver which lane to get into (or stay out of) when applicable. The system gives lane advice as part of the instruction when approaching an intersection where it matters. The instruction may also include advice about what lane to be in after the intersection, in preparation for the next act.

Speed advice includes warning the driver to slow down if she is travelling too fast to safely negotiate a turn. The limiting factor for angular acceleration is the driver, not the cornering ability of the car. Research has shown that the average driver will accept no more than 0.1 G radial acceleration. Radial acceleration is v^2/r where r is the turning radius of the turn. The Back Seat Driver knows the geometry of the road, so it can predict the maximum tolerable velocity for the turn. It need not tell the driver about this speed (the driver will choose a comfortable speed without being told), but it should estimate the distance required to decelerate, and tell the driver to slow down early enough to do this gently.

If the driver leaves the route, the Back Seat Driver immediately informs the driver and begins to plan a new route. Telling the driver what she did wrong prepares her for hearing new instructions, and perhaps helps her learn to better interpret the style of language that the Back Seat Driver uses.

To describe an error, the Back Seat Driver needs to look back to the last action that the driver failed to perform. It should utter a description of this action, saying e.g. "Oops, I meant for you to take a right," which does not blame the driver as in e.g. "You made a mistake. You should have taken a right." A driver might leave the route deliberately, or the error could be system's, not the drivers.

Errors will occur due to inaccuracies in the location system. The Back Seat Driver is preferably able to model the uncertainty of a position. For instance, when two roads diverge at a narrow angle, it will be unable to distinguish which was taken until some distance passes. It should probably assume that the driver made the correct choice rather than taking the risk of making a false accusation. If it reaches a place where the difference is crucial, yet unknown, it is probably better for it to confess its uncertainty, and say something like "I'm not quite sure where we are, but if you can take a right here, do it, and if not, keep going, and I'll figure things out better in a minute." Or it might ask the driver to pull over and stop (if the driver is at a place where that is safe) to allow for a better position estimate by averaging a few successive estimates.

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Errors will also occur if the database is somewhat out of date. The Back Seat Driver can regain at least a little confidence by how it explains the mistake. Suppose that the Back Seat Driver intends the driver to turn onto "Apple" Street, and says "Take a right at the next light". Unbeknownst to it, a new traffic light has been installed at "Pear" Street, so the driver turns there. It is somewhat confusing if the Back Seat Driver says "I meant for you to go straight," because the driver may think that the program has not been consistent. A better message would be "I did not mean for you to turn onto Pear. I thought that the next set of lights was at Apple Street."

While the driver is following a route, the Back Seat Driver preferably adopts a persistent goal of keeping the user reassured about her progress and the system's reliability. If the Back Seat Driver were a human, this might be unnecessary, since the driver could see for herself whether the navigator was awake and attending to the road and driver. But the driver cannot see the Back Seat Driver and so needs some periodic evidence that the system is still there. One piece of evidence is the safety warnings the system gives. But if all is going well, there will not be any. Other kinds of evidence that things are going well should be provided. When the user completes an action, the Back Seat Driver can acknowledge the driver's correct action, saying something like "nice work" or "good". Also, insignificant remarks about the roads nearby, the weather and so on, can be provided. The driver then assumes that everything is going well, for otherwise the Back Seat Driver would not speak of trivial matters.

The Back Seat Driver should know about the knowledge and desires of its driver, and act differently because of this knowledge. This knowledge is preferably incorporated in a user-model.

For driver properties which do not change or change very slowly, such as colorblindness, or visual or aural acuity, it is acceptable for the Back Seat Driver to ask the user for such knowledge. However, for other driver properties, the Back Seat Driver preferably acquires a model of the user automatically, without asking or having to be told. For example, the Back Seat Driver could learn the driver's reaction time by measuring the time between its speech and the driver's operation of the controls.

The Back Seat Driver preferably learns the style of instruction giving appropriate for the driver. To learn the driver's preferences for route description requires either observation of the driver herself giving instructions or getting feedback from the driver about the instructions the system provides.

The driver can provide feedback about the suitability of the Back Seat Driver's instructions either explicitly or implicitly. One explicit indication of comprehension is how often the driver hits the "what now?" button. The system might collect long term statistics on the types of intersections where the user most often requests help, and begin to offer instructions without being asked. Just as the user can ask for more talking with the "what now" button, the Back Seat Driver should provide a "shut up" button (or other means to the same effect). The Back Seat Driver could also learn the effectiveness of its directions simply by watching the driver's performance—in particular, her errors. In this way, it can learn which cues are most effective.

Another opportunity for learning the driver's style is during the acquisition of speech recognition templates

(for user-dependent speech recognition for driver input means, described below). The new user should play the role of a "back seat driver" and give instructions, while in a car, for some route. The instructions must be given while driving either a real car or a close simulation because the form of static driving instructions is much different from real time instructions. Given some a priori knowledge about the ways that a route can be described, it is not impossible that the system could understand the instructions, and infer style from it. A difficulty here is that if the driver knows the route well, many things will seem obvious to her that would not be obvious to another person.

If the Back Seat Driver knows what the driver knows about the city, it can give better directions. A user who knows about a city no longer need instructions, she needs information about structure. The object description system preferably provides novice users a process description which emphasizes casual connections, and experts structural descriptions. Experts do not need the casual information, they can derive it for themselves.

The attributes of the user-model preferably include: route-preference—does the driver want the fastest, shortest, or simplest route?

reassurance-period—how often should the program speak to the driver?

use-names—should the program tell the driver the names of passing streets?

congratulate-after-act—should the program make an explicit acknowledgment of correctness to the driver after each act?

obvious-to-cross-major—can the program assume that the driver will continue straight across a major intersection without being told explicitly to do so?

scowlaw—does the driver want to be warned when she is speeding?

daredevil—does the driver want warnings when driving dangerously fast?

distance-lowpass—does the driver want to be told the distance to the next action (in yards or miles, as appropriate). Most drivers do not understand distances in tenths of miles, so by default the program mentions only those distances that exceed one half mile.

The functions of the user-model preferably include:

obvious-next-segment—given a current position, is there a unique segment such that it is almost certain the driver will go there, without being told to do so?

at-major-intersection—is the current intersection one that the driver would call "major"?

extrapolate-path—try to predict the path the driver will follow in the next N seconds, assuming she does only what is obvious.

maximum-safe-speed—calculate the maximum speed at which the driver can get through an intersection. This calculation is based on finding the segment with the greatest radius of turn, and then calculating the largest speed the vehicle could have while making that turn without undergoing unacceptable sideways acceleration.

For the Back Seat Driver to decide what to say and when to say it, it preferably has a model of the vehicle performance. It must know, for example, how slowly the car should be going in order to safely make a turn. A suitably instrumented car could also measure the coefficient of friction by comparing the applied braking force and the resulting deceleration. This would allow it to adjust the time factors used in deciding when to speak.

The Back Seat Driver should understand the driver's plans and goals. When a driver enters a destination address, she is telling the system that she has the goal of getting to that address. The Back Seat Driver might guess at higher level plans from knowledge about the destination, and take actions to assist the driver with those plans. To do this, it must know what kind of thing is at the destination address. For instance, if the address provided is that of a store, the Back Seat Driver can guess that the driver is going there to purchase something, or at least to do business there. It could check the hours that the store is open.

The Back Seat Driver should help drivers to understand the route it gives. This would make the system more pleasant to use. It would also make it easier to follow routes because a driver who understands the route and the city will use that knowledge to help interpret the commands Back Seat Driver gives. A route should fit into a larger model of the city. This means that the Back Seat Driver itself must have a model of the city and should speak of the route in terms that relate it to the city. There are several opportunities to do this. At the beginning of the route, the driver might hear an overview of the route, naming the major paths followed and neighborhoods crossed. During the route, locations could be described not just as street address but in larger units of neighborhoods and districts. Orienting information can be included in instructions, or it might come between instructions, as a passing comment.

There are some additional services that the Back Seat Driver could easily provide. It should be able to give the location of a place without giving directions, it should be able to give the directions all at once, and it should be able to give directions between any two places. A driver might want to use these to tell someone else how to get to where they are.

The Back Seat Driver should be able to communicate with the outside world if the outside world is equipped to talk to it. For instance, after determining that a given parking garage is the closest or most convenient to the current destination, the Back Seat Driver could automatically phone or radio the garage and reserve a space.

The Back Seat Driver should be running on a computer embedded in the car, so that it can get more and better information about the state of the car and driver. For instance, when the next instruction is a turn, the Back Seat Driver should notice whether and when the driver turns on the turn signals. If the driver applies them too soon, it is possible (but not certain) that the driver has underestimated the distance to the turn; if applied at the "right time" then the system can take that the action has been understood; if never applied, then the driver has either misunderstood, or is driving haz- ardously.

The Back Seat Driver should also be integrated into the car's audio system, rather than having separate systems for voice and music. Furthermore, it should pay attention to what the driver is listening to. If the driver is listening to the radio, or playing a CD (or using a cellular telephone) the program should try to speak less often, on the grounds that the driver has implicitly indicated a preference for what to listen to. The program should suppress reminders and historical notes altogether. When it must speak, it should borrow the audio channel rather than trying to speak over it. The Back Seat Driver should also be aware of the driver's use of other controls in the car. It should defer speech

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while the driver is adjusting the heat or the mirrors, for example, and suppress speaking altogether if the car makes sudden extreme changes in velocity. A driver trying to cope with an emergency situation does not need another distraction.

The discourse model preferred for the Back Seat Driver is a partial implementation of the discourse theory described by B. J. Grosz and C. L. Sidner ("Attention, intentions, and the structure of discourse" in *Computational Linguistics*, 12(3):175-204, 1986) and the theory of intonational meaning described by J. Hirschberg and J. Pierrehumbert ("The intonational structuring of discourse" in *Proceedings of the Association for Computational Linguistics*, 136-144, July 1986). Both of these articles are herein incorporated by reference. This model allows the program (or programmer) to create and manipulate discourse segments. The program specifies the contents of the discourse segment (both the syntactic form and the list of objects referenced) and the implementation of the model does the following: generates prosodic features to convey discourse structure; inserts discourse segment into intentional structure; and maintains attentional structure—adding new objects when mentioned and removing old objects when replaced. In addition it includes some useful low-level tools for natural language generation: search of attentional structure for occurrence of co-referential objects; conjugation of verbs; generation of contracted forms; and, combination of sentences as "justification" sentences (e.g. "get in the right lane because you are going to take a right.") and sequential sentences ("Go three blocks, then turn left"). In order to use the discourse package the programmer must explicitly declare all semantic types used by the program, so in this case there are declarations for all objects which pertain to driving, such as street names, bridges, rotaries, stop lights and so on.

SPEECH GENERATOR

In the working prototypes of the Back Seat Driver, speech generation is performed by Dectalk, a commercial text-to-speech speech synthesizer, which is cabled to the main computing apparatus.

An alternative to synthesized speech is digitized speech, which is easier to understand than synthetic speech. Digitized speech, however, requires a great deal of storage space. There are more than 2000 different street names in Boston. Allowing another 500 words for the actual instructions, and assuming an average duration of 0.5 seconds for each word, coding this vocabulary at 64 kilobits per second would require 10 megabytes of speech storage. Given a Back Seat Driver that uses a CD-ROM for the map, the digitized speech could be stored on the disk as well. Coded speech would be more intelligible than synthesized speech, and less costly, but not as flexible. For, example, it would be impossible to read electronic mail using only stored vocabulary speech.

The generated speech is spoken to the driver through some kind of speaker system in the car. In a simple embodiment, the speaker system of the car radio is used.

DRIVER INPUT MEANS

Means for the driver to communicate with the back-seat driver are required. For example, the driver must be able to enter destination addresses, request instructions or a repeat of instruction, and inform the Back Seat driver when an instruction cannot be carried out

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for some reason. In embodiments where the computing apparatus is installed in the automobile, a computer keyboard can be adapted to provide this communication means.

In one working prototype of the Back Seat Driver, the computing apparatus is not installed in the automobile, but is accessed through a cellular telephone. In this embodiment, the driver communicates with the Back Seat Driver by using the cellular telephone keypad. Address entry is achieved by first entering the digits, then a number sign, then spelling the street name using the letters on the telephone keypad. The letters "Q" and "Z" are on the "6" and "9" keys, respectively, and the space character is on "1", which is otherwise unused. These keys are sufficient to spell any street name in Boston. The spelling rules can be easily expanded to enter street names with other characters in them, for example, "4th Street".

In the implementation, spelling a street name requires only one button push for each letter, even though there are three letters on each key. This is because of the redundancy in street names, which are pronounceable words, not arbitrary strings. There are 37 pairs of street names in Boston with the same "spelling" in the reduced "alphabet". An example is "Flint" and "Eliot", both encoded as "35468". This is only one percent of the 2628 names of streets in Boston, so collisions are rare. This technique appears workable even for larger sets of names. When the entire word list of the Brown corpus is encoded, there are still only 1095 collisions in the 19,837 words (5.5%).

If a name collision occurs, the Back Seat Driver reads the list of possibilities, and asks the driver which one was meant. This is very rare. A more common problem is that street names are duplicated. When this happens, the Back Seat Driver asks the user a series of questions to reduce the list to a single choice. It tries to ask the fewest questions possible. It asks the user to choose from a list of street types, if that is sufficient to resolve the question, and otherwise from a list of the containing cities (or neighborhoods, if there are two instances within a single city). To select from a list, the Back Seat Driver reads the contents, asking the user to push a button when the desired choice is read.

The Back Seat Driver would be much easier to use if the driver could simply talk to it instead of using a keyboard or keypad. Speech recognition could be used for driver input means, however, address entry is a difficult task for speech recognition for the same reason it is hard for a human to understand machine speech—there are few constraints on a name. No speech recognizer available today can handle a 3000 word vocabulary with acceptable error rates. The car would also have to be stopped while the driver was speaking, because noise in moving cars for frequencies below 400 Hz can exceed 80 dB.

Back Seat Driver could also use speech recognition to replace the "What now?" and "What next?" buttons. This is a more tolerant application for speech recognition because there are fewer words to recognize.

SYSTEM PROCESSES

The Back Seat Driver carries out three separate tasks, each of which is executed by its own process. All processes share the same address space, so all variables and functions are accessible in every process, and no special mechanism for interprocedure call is required. Where necessary for synchronization, Back Seat Driver uses

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queues or locks. All three processes are simple, infinite loops. The system processes are illustrated in FIG. 2.

The user process is the main process of the Back Seat Driver. It is this process which finds routes and gives instructions to the driver. The user process manages a list of goals. Each time around the loop, it selects a goal to work on, and does something to achieve the goal, if possible. The user process is connected to the speech generator, since that is how it talks to the driver.

The navigator process maintains an estimate of the current position and velocity of the car. It is connected to the position sensor by a serial line. Preferably, packets arrive from the position sensor several times a second. The navigator converts the data in the packets from the position sensor format to the format used by the Back Seat Driver.

There are two minor processes which assist the navigator process: The average speed process computes the running average speed of the vehicle over the last five seconds. It could be made part of the navigator process, but is distinct because it is more convenient that way. The position sensor monitor process keeps track of how often packets arrive. If packets do not arrive when scheduled, it should set a flag to indicate this to inform the driver if the position sensor ceases to work properly.

The control process is responsible for controlling the Back Seat Driver as a whole. The control process is connected to driver input means for entering, for example, the destination and requesting additional instructions while driving (e.g. the "What now?", "What next?" and "I can't do it" features.) Other functions of the control process are useful in a research prototype, but should not be required in a commercial embodiment of the Back Seat Driver. One such function is debugging.

The user process is a goal-driven perpetual loop which seeks to use the resources available to it to satisfy as many goals as possible as quickly as possible, devoting resources first to those goals which are of greatest importance. There are two aspects to this process, goal structures (which names goals) and goal-functions (which tell how to accomplish them). A goal is just a name, a priority (a number), and a set of slots (parameters). Thus for instance a typical goal would be (GET-TO-PLACE <140 Elm Street>), where the goal has one slot, namely the destination. A goal-function is a function which is possibly able to achieve a goal. When a new type of goal is defined, the programmer also tells the system which goal functions can possibly meet it, and later, when the system tries to accomplish a goal it selects from this list.

The goal loop is a three step process. 1) Check to see whether there are any newly added goals. The driver can add a goal by hitting a key, and the system can also add goals. 2) Find the most important goal to work on. 3) Work on that goal. In general, systems should use resources in the most efficient manner possible. For the Back Seat Driver, the only resource is speaking time. The only way the Back Seat Driver can accomplish any of its goals is by speaking. Speech is a resource because the program can only say one thing at a time, and speaking takes a finite time. It is also important to note that spoken utterance has a useful effect only if completely spoken, so it is not helpful to begin to speak if there is not time to complete the speech.

The protocol for a goal function preferably includes the following:

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progressable?—Is the goal able to accomplish anything at this time?

resource-used—If it runs now, what resources will it want to use?

maximum-time-of-resource—If it runs now, how long (in seconds) will it need each resource?

minimum-time-to-resource—The minimum time that it can estimate until it may again need this resource, and the priority of its use at that time.

In the working prototypes of the Back Seat Driver, the list of all goals is stored in the global variable *goals*. The goal loop and goal structures are defined in the file goals.lisp. The various goals and goal functions of the Back Seat Driver are defined in the files main.lisp, route-goals.lisp, and get-to-place.lisp. All goals which use speech are built from the speech-goal object defined in speech-goal.lisp. The speech resource itself is defined in speech-resource.lisp.

The goal or function which gets a user to a destination is called GET-TO-PLACE. An explanation of this goal will illustrate the goal mechanism in more detail, as well as illustrate how this most important function of Back Seat Driver is implemented. The goal GET-TO-PLACE, has two slots, destination which is the location the user wants to get to, and route which is the route the Back Seat Driver intends to use to get there.

The driver adds the goal to the system goal list by striking a key. When the goal is first created, the destination is not known (the destination slot is empty), so the goal function for GET-TO-PLACE creates a sub-goal, GET-DESTINATION, and adds it to the goal list. Now there are two goals on the goal list, GET-TO-PLACE and GET-DESTINATION, but only the second is progressable, because when a goal has a sub-goal, it is not allowed to run until the sub-goal finishes. Therefore, the only progressable goal is GET-DESTINATION, which attempts to get a destination by asking the user to enter an address. If the user fails to do so, the subgoal fails, which in turn causes GET-TO-PLACE to fail, and the Back Seat Driver says "Travel cancelled". Otherwise, it writes the destination into the destination slot of the GET-TO-PLACE goal. Now that the sub-goal is complete, GET-TO-PLACE can once again make progress. This time it finds that the route slot is empty, and again calls for the sub-goal GET-ROUTE, which calculates a route. When this is complete a third subgoal is invoked, namely FOLLOW-ROUTE.

The goal function for FOLLOW-ROUTE gets the driver to the destination by speaking instructions. If something goes wrong (for example if the driver makes a mistake) then the subgoal fails. But this does not make GET-TO-PLACE give up. Instead, it erases the route slot, and simply finds a new route, and then tries FOLLOW-ROUTE again. This continues, no matter how many times things go astray, until either FOLLOW-ROUTE succeeds, or the driver cancels the trip.

The goal FIND-SERVICE is similar to GET-TO-PLACE except the driver selects a kind of service (for example, a gas station), and then the Back Seat Driver finds the closest provider of that service, and then finds a route to it. Following that route is done by FOLLOW-ROUTE in the same way as for GET-TO-PLACE.

The FOLLOW-ROUTE goal function gets the user to her destination by giving spoken instructions. There are several reasons it might speak: at the beginning, to alert the driver

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to give an instruction in advance, so the driver will be ready

to give an instruction when it is time to do it
to confirm that the driver has correctly carried out an instruction

to inform the driver of her arrival at the destination
to reassure the driver that she is still on route
to inform the driver of a mistake

to warn the driver that she is driving so fast that the program cannot keep up.

FOLLOW-ROUTE decides the next reason for speaking by first trying to locate the current position on the path. If the position is not on the path (more precisely, if the current segment does not occur anywhere on the path) then the driver has left the path (or the position sensor has made an error). Otherwise, FOLLOW-ROUTE determines what instruction must be next executed by calling the function next-driver-instruction.

The goal function protocol requires that FOLLOW-ROUTE support the goal function minimum-time-to-resource, which estimates the minimum time until FOLLOW-ROUTE will next speak. This time depends upon the reason for the next speaking. FOLLOW-ROUTE speaks immediately when beginning, confirming, warning, or finishing the route. When the driver is off the route, FOLLOW-ROUTE waits a few seconds before speaking, just in case the driver's departure from the route is actually a temporary error by the position sensor.

Given that the driver is on the path, FOLLOW-ROUTE determines when to speak by calculating the position where it must begin speaking the instruction text, then estimating the time required to reach that position at the driver's current speed. As the driver's speed changes, so will this estimated time. The position to begin speaking is calculated by first finding the position where the instruction is executed, then moving back a distance to allow the Back Seat Driver time to speak the text and the driver to react to it.

The Back Seat Driver can also give instructions in advance, if desired. It does this in much the same way, except that it adds an additional number of seconds (normally thirty) to the time estimate, and so begins to speak much sooner. When it gives instructions in advance the instruction text is longer because the program has more time to speak.

When the driver leaves the route FOLLOW-ROUTE starts a timer. If the driver has not returned to the route by the time the timer goes off (at present, two seconds) then FOLLOW-ROUTE checks for a possible mistake. In describing the mistake, it attempts to characterize what the driver actually did as well as what the program intended the driver to do. It is able to do this because in the main loop it stored the last position that the driver was on when last on the route.

Goals may interrupt lower priority goals by requesting the speech resource to interrupt the lower priority goal. Interruption stops the speech synthesizer immediately. The interrupted goal is informed of the interruption, and can react as it chooses. There is no way for the goal to know whether any of its words were actually spoken, so it has to start all over. Most goals attempt to run again as soon as possible. The assumption is that the interruption occurred because the user started some higher priority goal after learning how to do so through the help command.

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The system treats "repeat the last statement" as a goal, rather than as a special purpose function, except that the importance of this goal is set to the value of the last goal spoken (the goal whose utterance is being repeated). This guarantees that if some more important goal desires to speak, it will be able to. A repetition of an utterance is no more important than it was originally.

Goals can be temporary or persistent. Temporary goals can be satisfied, but persistent goals never can be.

All system initiated goals are persistent. The system goals include warning the driver of dangers ahead (WARN-DRIVER) and informing the user of new electronic mail or other messages (if the computer apparatus of the Back Seat Driver is connected to the outside world). These goals can never be satisfied. The driver's safety should always be preserved and mail or messages can arrive at any time.

CELLULAR PHONE EMBODIMENT

The Back Seat Driver is preferably an in-car navigation system, but in some embodiments, it may be desirable to not have the entire computing apparatus installed in the car. This is the case if the computing apparatus is too large or if a number of cars are to share a single computing apparatus.

For such embodiments, two cellular phones installed in the car can be used to transmit data from the car to the computing apparatus, and to receive voice from the speech generator in the computing apparatus. In this embodiment, data from the position sensor installed in the automobile is sent through a cellular phone in the car equipped with a modem to a phone connected to the computing apparatus via a modem. The voice generating apparatus of the computing apparatus sends speech over another phone to a second cellular phone installed in the automobile.

This embodiment has been implemented in a working prototype, using a large workstation computer (a Symbolics Lisp Machine). In this implementation, a position sensor installed in the car estimates vehicle position, heading, and velocity, and sends a data packet, once per second, through a modem to the workstation. The workstation sends characters to a Dectalk speech synthesizer, which in turn sends voice over a second phone to the driver.

Nearly everyone who has used a cellular phone knows how noisy they are. Cross talk is common and noise bursts and signal loss make it hard to hear. A sufficiently bad noise burst can even cause the cellular system to terminate the call. The problems for data transmission are even worse. By its very nature, cellular radio transmission is subject to multi-path interference, which causes periodic fades as the antenna moves in and out of anti-nodes. In addition to this fading, there is a complete loss of audio signal for as long as 0.9 seconds when the phone switches from one cell site to another (hand off).

An attempt to use an ordinary (land-line) modem from the car was unsuccessful. In the prototype, a Worldlink 1200 from Touchbase Systems was used in the car, with a Morrison and Dempsey AB1 data adapter, and an NEC P9100 phone, boosted to 3 watts. At the base station, both a Practical Peripherals 2400 and a Hayes Smartmodel 1200 were used. Even at 300 baud the connection was too noisy to use. Worse, connections seldom lasted more than five minutes. In all cases, the "loss of carrier" register (S10) was set to its maximum value, 20 seconds. Loss of carrier signal alone

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cannot explain why the connections dropped. The modems were capable of tolerating a complete loss of audio for up to twenty seconds.

Better results were found using an error correcting modem (The "Bridge") made by the Spectrum Cellular Corporation. This modem uses a proprietary protocol (SPCL) for error correction. The Spectrum product virtually eliminated noise, at the price of a lower data transmission rate. According to the protocol, the transmitting modem groups characters into packets that include error correction bytes. If only a few errors occur, the receiving modem repairs the data and acknowledge receipt. If there are many errors, the packet is retransmitted. If the sending modem has to retransmit too often it makes the packets smaller, on the assumption that a smaller packet has a better chance of success. This is less efficient, since packets have a fixed overhead, the percent of the channel used by data decreases. When conditions improve the modem increases packet size again. In theory, the modem can transmit at 120 characters per second, but tests made by recording the time required to receive the three characters of an odometer sequence demonstrated that the average value is closer to 30 characters per second. This sequence is transmitted once per second. The mean for durations for the three character sequences is 94 milliseconds, which is 31 milliseconds per character, or 32 characters per second.

Even with the cellular modem, calls are sometimes dropped. The call durations are usually long enough for a successful trip with the Back Seat Driver. Voice calls are dropped at about the same rate as data calls.

The protocol used by the Spectrum modem acknowledges all data transmitted. If the acknowledgment is not received, it retransmits the data until acknowledged. Under adverse conditions, this can result in an arbitrarily long delay. This is a problem when real-time data is transmitted. Observation of the Back Seat Driver shows that sometimes the system will "freeze" for from one to ten seconds. During this time, the car of course continues to move. If these freezes occur near decision points, the driver may go past the intersection without being told what to do. At 20 miles per hour a car travels nearly 45 meters in five seconds. The navigation system in the car sends a packet once every second. Most packets arrive within a second, but a few are delayed, some by up to ten seconds. (These delays may also arise from delays at the workstation. Lisp Machines are not noted for real-time response.)

It would be better to have a protocol which guarantees to deliver data intact and free of errors, if it delivers it at all, but does not guarantee to deliver the data. Real time data is only valuable in real time, and time spent retransmitting old data is taken away from ever, more valuable data. Such a protocol modification is feasible for the Spectrum product.

What is claimed is:

1. An automobile navigation system which produces spoken instructions to direct a driver of an automobile to a destination in real time comprising:

computing apparatus for running and coordinating system processes.

driver input means functionally connected to said computing apparatus for entering data into said computing apparatus, said data including a desired destination.

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a map database functionally connected to said computing apparatus which distinguishes between physical and legal connectivity.

position sensing apparatus installed in the automobile and functionally connected to said computing apparatus for providing said computing apparatus data for determining the automobile's current position,

a location system functionally connected to said computing apparatus for accepting data from said position sensing apparatus, for consulting said map database, and for determining the automobile's current position relative to the map database,

a route-finder functionally connected to said computing apparatus, for accepting the desired destination from said driver input means and the current position from said location system, for consulting said map database, and for computing a route to the destination,

a discourse generator functionally connected to said computing apparatus for accepting the current position from said location system and the route from said route finder, for consulting said map database, and for composing discourse including instructions and other messages for directing the driver to the destination from the current position.

a speech generator functionally connected to said discourse generator for generating speech from said discourse provided by said discourse generator, and

voice apparatus functionally connected to said speech generator for communicating said speech provided by said speech generator to said driver.

2. The automobile navigation system of claim 1 wherein said map database comprises a set of straight line segments and a set of nodes, each endpoint of each segment being a pointer to a node representing the coordinates of the endpoint and the set of other segments which are physically and legally connected to that endpoint.

3. The automobile navigation system of claim 1 wherein said map database is based on DIME files of the United States Census extended to represent physical and legal connectivity.

4. The automobile navigation system of claim 3 wherein said DIME file is further extended to distinguish bridges, underpasses, tunnels, rotaries, and access ramps from other street types.

5. The automobile navigation system of claim 1 wherein said map database is based on TIGER files of the United States Census and United States Geological Survey extended to represent physical and legal connectivity.

6. The automobile navigation system of claim 5 wherein said TIGER file is further extended to distinguish bridges, underpasses, tunnels, rotaries, and access ramps, from other street types.

7. The automobile navigation system of claim 1 wherein said map database comprises a three-dimensional representation of street topology.

8. The automobile navigation system of claim 1 wherein said map database includes measures of street quality.

9. The automobile navigation system of claim 1 wherein said map database distinguishes divided streets.

10. The automobile navigation system of claim 1 wherein said map database includes landmarks such as signs, traffic lights, stop signs and buildings.

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11. The automobile navigation system of claim 1 wherein said map database includes lane information.

12. The automobile navigation system of claim 1 wherein said map database includes speed limits.

13. The automobile navigation system of claim 1 wherein said map database includes expected rate of travel.

14. The automobile navigation system of claim 1 wherein said map database includes time-dependent legal connectivity.

15. The automobile navigation system of claim 1 wherein said map database includes turn difficulty.

16. The automobile navigation system of claim 1 wherein said map database includes vehicle street, lane, and height restrictions.

17. The automobile navigation system of claim 1 wherein said map database includes traffic light cycles.

18. The automobile navigation system of claim 1 wherein said map database distinguishes where right turn on red is allowed.

19. The automobile navigation system of claim 1 wherein said map database includes a database of service locations.

20. The automobile navigation system of claim 1 wherein said map database includes a listing of famous places by name.

21. The automobile navigation system of claim 1 further comprising means for updating said map database.

22. The automobile navigation system of claim 1 further comprising means for updating said map database by radio broadcast.

23. The automobile navigation system of claim 1 wherein the map has minimum accuracy of 10 meters.

24. The automobile navigation system of claim 1 wherein said route finder is based on a best-first search algorithm.

25. The automobile navigation system of claim 1 wherein said route finder is based on an A* algorithm.

26. The automobile navigation system of claim 1 wherein said route finder is based on an A* algorithm modified to find a route in less time.

27. The automobile navigation system of claim 1 wherein said route finder is adapted to find a best route according to any one of three cost metrics: distance, speed, simplicity.

28. The automobile navigation system of claim 1 wherein said route finder is adapted to calculate a new route if the driver or vehicle navigation system makes an error or if the route is unnavigable due to unforeseen circumstances, wherein said new route does not simply backtrack to the point of the error if a better route from the current location exists.

29. The automobile navigation system of claim 1 wherein said route finder is adapted to calculate a new route while the automobile is in motion, wherein said new route will begin from the location of the automobile at the time the calculation of the new route is completed.

30. The automobile navigation system of claim 29 wherein an estimated time to find a new route is multiplied by the velocity of the automobile to calculate the position from which the new route should start.

31. The automobile navigation system of claim 30 wherein said estimated time to find a new route is calculated by multiplying the distance between the starting and ending points of the new route by a constant.

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32. The automobile navigation system of claim 1 wherein said location system is a position-keeping (dead-reckoning) system.

33. The automobile navigation system of claim 1 wherein said location system is a hybrid of position-keeping and position-finding systems.

34. The automobile navigation system of claim 1 wherein said location system employs map matching.

35. The automobile navigation system of claim 1 wherein said position sensing apparatus comprises displacement and direction sensors installed in the automobile.

36. The automobile navigation system of claim 1 wherein said position sensing apparatus measures displacement with an odometer.

37. The automobile navigation system of claim 1 wherein said position sensing apparatus measures direction with a magnetic compass.

38. The automobile navigation system of claim 1 wherein said position sensing apparatus measures direction by monitoring the turning of the steering wheel.

39. The automobile navigation system of claim 1 wherein said position sensing apparatus measures direction with a differential odometer.

40. The automobile navigation system of claim 1 wherein said position sensing apparatus measures direction with a gyroscope.

41. The automobile navigation system of claim 1 wherein said discourse generator is based on an object-oriented programming methodology.

42. The automobile navigation system of claim 1 wherein each intersection in a route is classified into one type in a taxonomy of intersection types, and the disclosure generated in relation to each said intersection depends on its type.

43. The automobile navigation system of claim 42 wherein said taxonomy of intersection types includes continue, forced-turn, U-turn, enter, exit, onto-rotary, stay-on-rotary, exit-rotary, fork, turn, and stop.

44. The automobile navigation system of claim 42 wherein said discourse generated further depends on a description function for each intersection type which generates a description given the length and tense of the desired description and the position along the route from which an instruction is to be given.

45. The automobile navigation system of claim 1 wherein said discourse generated comprises a long description of an act given substantially before the act is to be performed and a short description given at the time the act is to be performed.

46. The automobile navigation system of claim 45 wherein said long descriptions includes cues.

47. The automobile navigation system of claim 46 wherein said cue is a landmark.

48. The automobile navigation system of claim 1 wherein said driver input means includes means for said driver to demand immediate instructions, or clarification or repetition of instructions already provided.

49. The automobile navigation system of claim 1 wherein said driver input means includes means for said driver to indicate to said automobile navigation system that a given instruction provided by said system is impossible to complete for some reason and that a new route must be calculated.

50. The automobile navigation system of claim 1 wherein said driver input means comprises a voice recognition system to allow at least some driver input to be spoken.

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51. The automobile navigation system of claim 1 wherein said automobile navigation system records a history of the route and the discourse already generated and uses this knowledge to generate cues for future discourse and make future discourse more understandable.

52. The automobile navigation system of claim 1 wherein said automobile navigation system warns drivers of dangers inferred from knowledge of the road network.

53. The automobile navigation system of claim 1 wherein said automobile navigation system informs a driver if an error has been made as detected by the location system.

54. The automobile navigation system of claim 1 wherein said discourse generator is responsive to a user-model stored in said computing apparatus to customize discourse to the requirements and preferences of said driver.

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55. The automobile navigation system of claim 1 wherein said speech generator is a speech synthesizer.

56. The automobile navigation system of claim 1 wherein said speech generator uses digitized speech.

57. The automobile navigation system of claim 1 wherein said computing apparatus is not installed in the automobile, and said automobile navigation system further comprises means for communication between said computing apparatus and the automobile navigation system components installed in the automobile.

58. The automobile navigation system of claim 57 wherein said means for communication is two cellular phones in said automobile, one of which is connected to a modem, and two phones connected to said computing apparatus, one of which is connected to a modem, whereby one data channel and one voice channel between said automobile and said computing apparatus is created.

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**Claims 1, 19, 20, and 56 of U.S. Patent No. 5,177,685
Are Anticipated By the Streeter Reference**

**U.S. Patent No. 5,177,685
Claim 1**

1. An automobile navigation system which produces spoken instructions to direct a driver of an automobile to a destination in real time comprising:

computing apparatus for running and coordinating system processes,

driver input means functionally connected to said computing apparatus for entering data into said computing apparatus, said data including a desired destination,

a map database functionally connected to said computing apparatus which distinguishes between physical and legal connectivity,

position sensing apparatus installed in the automobile and functionally connected to said computing apparatus for providing said computing apparatus data for determining the automobile's current position,

a location system functionally connected to said computing apparatus for accepting data from said position sensing apparatus, for consulting said map database, and for determining the automobile's current position relative to the map database,

a route-finder functionally connected to said computing apparatus, for accepting the desired destination from said driver input means and the current position from said location system, for consulting said map database, and for computing a route to the destination,

a discourse generator functionally connected to said computing apparatus for accepting the current position from said location system and the route from said route finder, for consulting said map database, and for composing discourse including instructions and other messages for directing the driver to the destination from the current position,

a speech generator functionally connected to said discourse generator for generating speech from said discourse provided by said discourse generator, and

voice apparatus functionally connected to said speech generator for communicating said speech provided by said speech generator to said driver.

**Streeter et al., "How to Tell People Where
to Go: Comparing Navigational Aids"**

"Unlike the situation in the present experiment, a car computer instead of the driver would keep track of interturn mileages and signal the driver of an approaching turn." Pg. 561.

"Initially, there has to be some convenient way for the driver to indicate starting location and destination. Pg. 549.
"Human interface considerations figure prominently in how the driver should inform the service of a starting location and final destination, and perhaps in the type of route that should be provided for the driver." Pg. 550.

"To implement such as system requires a computer-stored, geographical data base and a way to search such a data base for a route between two points. Pg. 561. Route planning, at a minimum, involves storing knowledge of the road-system topology, the distances between intersections, direction of travel of streets, and placement of exit and entrance ramps to major road." Pg. 550.

"There also has to be an accurate means of tracking the vehicle's position as it moves through the road system. There are three major methods of tracking vehicle position:

- (1) Radio methods
- (2) Dead reckoning methods
- (3) Proximity or sign-post methods" Pg. 549-50.

"With an inertial guidance system communicating with a geographical data base, it would be possible to determine when the driver had made an error. Thus, knowledge of the road system would make it possible to reinitialize the driver's position, which is not possible using only an inertial guidance system." Pg. 561.

"Automatic route selection is now possible. For instance, Elliott and Lesk (1982) have demonstrated that routes can be found between two points using sizeable extant geographical data bases, e.g. select counties in northern New Jersey, constituting a total of 70,000 intersections. Using some standard graph-searching algorithms, augmented with knowledge of major streets, they have produced some promising results." Pg. 550.

"We designed instructions that were automatable. That is, given a machine readable geographical data base and route between a starting location and destination, instructions could be generated using the data base and an instruction generating program." Pg. 551.

"Given a route, text instructions could be generated and transmitted to an in-car computer and converted to voice by a resident text-to speech synthesizer chip." Pg. 561.

"Thus, using the auditory channel for directional information appears to be ideal on many counts." Pg. 561.

Claim 19

19. The automobile navigation system of claim 1 wherein said map database includes a database of service locations.

Streeter et al., "Comparing Navigational Aids"

"We selected landmarks that could reasonably be expected to be in a business/places data base. In our case, we used landmarks, if they were: (1) situated on corners, (2) were a business, church or apartment complex, and (3) were listed in the telephone directory." Pg. 552.

"Table 1 shows the basic format of the instructions. Preference was given to landmarks as indicators of when a turn was approaching." Pg. 554.

Claim 20

20. The automobile navigation system of claim 1 wherein said map database includes a listing of famous places by name.

"We selected landmarks that could reasonably be expected to be in a business/places data base. In our case, we used landmarks, if they were: (1) situated on corners, (2) were a business, church or apartment complex, and (3) were listed in the telephone directory." Pg. 552.

"Table 1 shows the basic format of the instructions. Preference was given to landmarks as indicators of when a turn was approaching." Pg. 554.

Claim 56

56. The automobile navigation system of claim 1 wherein said speech generator uses digitized speech.

"Given a route, text instructions could be generated and transmitted to an in-car computer and converted to voice by a resident text-to speech synthesizer chip." Pg. 561.

**Claims 1, 19, 20 and 56 of U.S. Patent No. 5,177,685
Are Anticipated By U.S. Patent No. 4,758,959**

**U.S. Patent No. 5,117,685
Claim 1**

1. An automobile navigation system which produces spoken instructions to direct a driver of an automobile to a destination in real time comprising:

computing apparatus for running and coordinating system processes,

driver input means functionally connected to said computing apparatus for entering data into said computing apparatus, said data including a desired destination,

a map database functionally connected to said computing apparatus which distinguishes between physical and legal connectivity,

position sensing apparatus installed in the automobile and functionally connected to said computing apparatus for providing said computing apparatus data for determining the automobile's current position,

a location system functionally connected to said computing apparatus for accepting data from said position sensing apparatus, for consulting said map database, and for determining the automobile's current position relative to the map database,

a route-finder functionally connected to said computing apparatus, for accepting the desired destination from said driver input means and the current position from said location system, for consulting said map database, and for computing a route to the destination,

a discourse generator functionally connected to said computing apparatus for accepting the current position from said location system and the route from said route finder, for consulting said map database, and for composing discourse including instructions and other messages for directing the driver to the destination from the current position,

a speech generator functionally connected to said discourse generator for generating speech from said discourse provided by said discourse generator, and

voice apparatus functionally connected to said speech generator for communicating said speech provided by said speech generator to said driver.

U.S. Patent No. 4,758,959

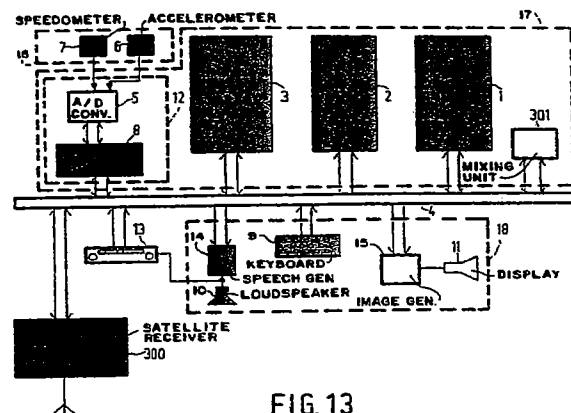


FIG. 13

"an indication of a one-way or two-way street, with direction indication for one-way traffic; roads that connect to that segment are also included in the relevant data block by means of coding and addresses that refer to other memory locations; a reference to a location where particular information, such as the presence of traffic lights, obstructions and other topological data of the segment." Col. 9, lines 28-32.

"The working memory and the control unit together fulfill the task of a route-determining unit. The number of segments comprises the segments that are needed for determining the route." Col. 10, lines 9-11.

"Through the loudspeaker and/or the image display device the user is given information on the road to be followed in order to reach the destination. It is not necessary for the navigation system to contain both the loudspeaker and the image display device; one of the two is sufficient." Col. 8, lines 21-26.

Claim 19

19. The automobile navigation system of claim 1 wherein said map database includes a database of service locations.

U.S. Patent No. 4,758,959

"Stored on this Compact Disc in the form of digital data are geographical data on the road network of a country or a part thereof as well as town maps with street names, sights of interest, hotels etc. of that country." Col. 7, lines 58-62.

"Other information can also be stored in the Compact Disc, such as for example addresses (and telephone numbers) of hotels, petrol stations, etc." Col. 9, lines 36-38.

Claim 20

20. The automobile navigation system of claim 1 wherein said map database includes a listing of famous places by name.

"Stored on this Compact Disc in the form of digital data are geographical data on the road network of a country or a part thereof as well as town maps with street names, sights of interest, hotels etc. of that country." Col. 7, lines 58-62.

"Also belonging to a segment are a place name and street name, or a road number, depending on the location of that segment, which are also stored on the Compact Disc. This makes it possible to search on the basis of place and street names or road number." Col. 9, lines 7-11.

Claim 56

56. The automobile navigation system of claim 1 wherein said speech generator uses digitized speech.

"The communication unit 18 further contains a loudspeaker 10 which is connected via a speech generator 14 to the bus 4, and further an image generator 15 to which a display device 11 is connected." Col. 8, lines 15-20.

Analysis of U.S. Patent No. 5,117,685

Claims 1, 19, 20, and 56 of U.S. Patent No. 5,177,685 (the “’685 patent”) are anticipated by both the Streeter *et al.*, “How to Tell People Where to Go: Comparing Navigational Aids,” *Int. J. Man-Machine Studies*, vol. 22, 549-562 (1985) reference (“Streeter”) and U.S. Patent No. 4,758,959 (the “’959 patent”). Neither reference was considered during prosecution of the ’685 patent, and the inventors noted in their published materials that both Streeter and the work leading to the ’959 patent were material.

1. The ’685 Patent Is Anticipated By Streeter.

Streeter teaches different navigational aids and provides analysis to show which worked best. Specifically, Streeter analyzed systems implementing voice directions, map directions, and a combination of voice and map directions. In experiments, drivers who received voice directions played a tape recorder that permitted them to play the next or the previous voice instruction. Drivers who received map directions were provided with a map and the route highlighted in red. And, drivers who received a combination of voice and map directions played the tape recorder and were provided the highlighted map. Analyzing the results, Streeter determined that voice directions alone were the superior navigational aid. Based on this, Streeter concluded that “using the auditory channel for directional information appears to be ideal on many counts.” Streeter, at 561.

The inventors credited Streeter as the genesis of the subject matter of the ’685 patent. The inventors stated that they were “influenced by an experiment [disclosed in Streeter] on route following which compared spoken instructions with paper maps. Subjects who hear spoken directions did better than those with *both* sources of guidance.” Davis *et al.*, “The Back Seat Driver: Real Time Spoken Driving Instructions,” *Proceedings, IEEE Vehicle Navigation and Information Systems Conference, IEEE, Toronto, Canada*, 146-150, 146 (Sept. 1989) (emphasis in original); *see also* Schmandt *et al.*, “Synthetic Speech for Real Time Direction-Giving,” *IEEE Trans. On Consumer Elec.*, vol. 35, No. 3, 649-53, 649 (Aug. 1989) (“there is some evidence that drivers do better following spoken directions than reading maps”). The inventors attempt to limit Streeter as requiring the “driver to determine when to carry out the instruction and to decide when the instruction was correctly executed.” Davis, J.R., “Back Seat Driver: Voice Assisted Automobile Navigation,” Ph.D. Thesis, Massachusetts Institute of Technology, at 19 (Sept. 1989). However, the inventors ignore the clear teachings in Streeter to the contrary.

While Streeter did rely on a tape recorder for purposes of conducting an experiment, Streeter also teaches a navigational system with real-time computer-generated voice instructions as discussed in the following excerpt:

Given the superiority of voice instructions over maps shown by this experiment, a suitable interface to a navigational guidance system ought to be voice-oriented. To implement such a system requires a computer-stored, geographical data base and a way to search such a data base for a route between two points. This is clearly possible with current technology. . . . Given a route, text instructions could be generated and transmitted to an in-car computer and converted to voice by a resident text-to-speech synthesizer chip. Unlike the situation in the present experiment, a car computer instead of the driver would keep track of interturn mileages and signal the driver of an approaching turn. With an inertial guidance system communicating with a geographical data base, it would be possible to determine when the driver had made

an error. Thus, knowledge of the road system would make it possible to reinitialize the driver's position, which is not possible using only an inertial guidance system. Information on how to correct one's error could be transmitted to the car in the same manner as the original text instructions. The technological possibilities are numerous, but the critical point is that the navigational information should be presented vocally.

Streeter, at 561. In addition, the map database taught in Streeter includes business and landmark information, which is used to generate vocal driving instructions. As shown in more detail in the claim chart, Streeter teaches each of the limitations of claims 1, 19, 20, and 56 of the '685 patent. Thus, the '685 patent is invalid under 35 U.S.C. § 102 as anticipated by Streeter.

2. The '685 Patent Is Anticipated By the '959 Patent.

The '959 patent lists Martinus L.G. Thoone ("Thoone") as lead inventor and is assigned to U.S. Philips Corporation ("Philips"). The '959 patent discloses a map database resident in mass storage device 3 that distinguishes between legal and physical connectivity. For example, the map database indicates whether a street is one-way or two-way and the direction for the one-way traffic. Further, the map database lists roads that connect to other roads in the database and lists hotels, gas stations, and sights of interest. Col. 7, lines 58-62; col. 9, lines 28-32. Control unit 1 and memory 2 in the '959 patent access the map database to determine the route of the automobile. Col. 10, lines 9-11. While en route, position sensing devices such as accelerometer 6, speedometer 7, and satellite receiver 300 work with microprocessor 8 to determine the current location of the automobile relative to the map database in mass storage device 3. Col. 24, lines 35-40. Further, information is provided to the driver, either in the form of voice directions and/or images, to guide the driver along the determined route. For example, the voice directions are sent to speech generator 14, which uses the loudspeaker 10 to communicate the directions to the driver. Col. 8, lines 21-26.

The inventors of the '685 patent analyzed earlier research by Thoone and Phillips. Specifically, one of the inventors reviewed the article, "Applications of the Compact Disc in Car Information and Navigation Systems," by Martinus L.G. Thoone *et al.*, Technical Papers Series 840156, *Society of Automotive Engineers* (1984), and stated the following:

The driver enters a destination using either a keyboard or a touch sensitive screen. The system displays routes on a map and gives spoken driving directions. The map is stored on board in CDROM, and a radio link provides for updates on traffic conditions. The system is potentially interesting, but very little has been published about it.

Davis, J.R., "Back Seat Driver: Voice Assisted Automobile Navigation," Ph.D. Thesis, Massachusetts Institute of Technology, at 107 (Sept. 1989). Applicants submitted this earlier Thoone article to the U.S. Patent Office; however, the later '959 patent was not submitted. Moreover, as shown above, the '959 patent discloses additional subject matter regarding spoken driving directions and therefore anticipates claims 1, 19, 20, and 56 of the '685 patent. Thus, the '685 patent is invalid under 35 U.S.C. § 102 as anticipated by the '959 patent.

International Journal of Man-Machine Studies

Executive Editors B. R. Gaines and D. R. Hill

THE UNIVERSITY
OF MICHIGAN

OCT 07 1985

Volume 22

Number 5

ENGINEERING May 1985
LIBRARY

Academic Press

(Harcourt Brace Jovanovich, Publishers)

London Orlando San Diego New York

Toronto Montreal Sydney Tokyo

Int. J. Man-Machine Studies (1985) 22, 549-562

How to tell people where to go: comparing navigational aids

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(Received 13 December 1983 and in revised form 25 June 1984)

To compare the effectiveness of navigational aids, drivers attempted to follow routes in unfamiliar environments using either customized route maps, vocal directions, or both. The customized route maps, which included only information relevant to the particular route, were drawn to scale, used colour, included interturn mileages, and showed landmarks. The route to be driven was traced in red. To obtain vocal directions, drivers operated a tape recorder that permitted them to play the next or the previous instruction. Instructions were generated by a set of rules with roughly one set of instructions per turn. Information that was not on the map was not included in the vocal instructions. Drivers who listened to directions drove to destinations in fewer miles, took less time, and showed about 70% fewer errors than the map drivers. The performance of drivers with route maps and voice directions was between that of the map only and voice only drivers.

1. Introduction

1.1 AN ELECTRONIC NAVIGATOR SERVICE

The same technology that is making office automation possible is also being used in "auto automation". If one imagines a car equipped with a mobile telephone and some on-board computing power, a variety of information services become feasible. The question with regard to new vehicle services is not what can be offered, but rather which of the many possible services do drivers want and how should they be designed for effective use.

One candidate service for the automated car is an electronic route finder. In its most comprehensive form, such a service would include tracking the vehicle's position, devising a route, and interfacing with the driver.

1.1.1. Tracking the vehicle's location

Initially, there has to be some convenient way for the driver to indicate starting location and destination. There also has to be an accurate means of tracking the vehicle's

position as it moves through the road system. There are three major methods of tracking vehicle position:

(1) Radio methods, which for the most part do not give sufficient positional resolution for city use; the most promising of these is Loran C or some other low-frequency radio method.

(2) Dead reckoning methods, which use the vehicle's direction and distance travelled to compute its position. Since errors cumulate, there have to be built-in mechanisms to reinitialize the system's positional information. One such commercially available dead-reckoning system is the Honda Electro-Gyrocat (Jurgen, 1982).

(3) Proximity or sign-post methods have proved to be the most reliable way of tracking a vehicle's position, achieving accuracies of less than 300 feet in 95% of the cases. Low-power transmitters can be positioned on sign-posts or, alternatively, magnets or coils can be embedded under the surface of the road. While reliable, this method is only as good as the number of transmitters, which introduces a considerable expense for any sizeable geographical area.

1.1.2. Planning a route

Route planning, at a minimum, involves storing knowledge of the road-system topology, the distances between intersections, direction of travel of streets, and placement of exit and entrance ramps to major road. In addition, data on road conditions, primarily traffic density and road construction, should be available to the route planner.

Automatic route selection is now possible. For instance, Elliott and Lesk (1982) have demonstrated that routes can be found between two points using sizeable extant geographical data bases, e.g. select counties in northern New Jersey, constituting a total of 70 000 intersections. Using some standard graph-search algorithms, augmented with knowledge of major streets, they have produced some promising initial results.

1.1.3. Human interface to service

Human interface considerations figure prominently in how the driver should inform the service of a starting location and final destination, and perhaps in the type of route that should be provided for the driver. However, the most important consideration is how route information should be presented to the driver—verbally, visually or both, and further, what should the content of this information be? In what follows, we concentrate on human interface issues relevant to an electronic route finding service. In particular, we compare the effectiveness of voice only, visual only, and visual plus voice navigational aids in an actual driving experiment.

1.1.4. Previous work on human navigation

Navigating in unfamiliar environments is a formidable task for many. People often pride themselves on their navigational prowess and rightly so, since this complex skill requires knowledge of map reading rules and conventions and high spatial ability. Previous work has established that: (1) people tend to know whether or not they are good navigators (Kozlowski & Bryant, 1977; Streeter & Vitello, in press); (2) performance on spatial memory tests is correlated with self-assessment of navigational ability as well as with tasks with navigational face validity, such as pointing to unseen buildings or nearby cities (Kozlowski & Bryant, 1977; Thorndyke & Stasz, 1980; Thorndyke & Goldin, 1981; Streeter & Vitello, in press). Good navigators tend to like, own, and use

maps, and the opposite is true of poor navigators. Highly spatial people draw maps for others and similarly want maps drawn for them (Streeter & Vitello, in press).

Streeter & Vitello (in press) had subjects trace routes between two points on a detailed county map. There were a large number of map reading errors, so that the resulting routes would not have been driveable. The predominant errors were incorrect entries and exits from limited access roads. Many maps represent this information poorly. Since map reading is difficult even in the absence of a competing task, such as driving, we wanted to construct maps that were easier to use than standard road maps. If successful, these maps could be used as the basis for a computerized in-car display. Since colour is an effective cue for differentiating road classes (Phillips, 1979), we thought that a better route map should at least contain information in colour, should display only as much detail as is needed for a particular route, and should clarify entries and exits from limited access roads.

Streeter & Vitello (in press) found that all subjects reported being able to follow verbal directions well. Also, all subjects reported relying heavily on landmarks for navigation. Since many people's map reading skills are poor, and since reading a map while driving is reported to be extremely difficult (Smith, 1978), we felt that properly designed vocal instructions might be the best medium for navigation information.

We designed instructions that were automatable. That is, given a machine readable geographical data base and route between a starting location and destination, instructions could be generated using the data base and an instruction generating program. In addition, we attempted by design iterations to make vocal instructions that were "memorable" and "easy to use".

In the present experiment, vocal instructions were compared with customized route maps for ease of driving to unfamiliar destinations. Note that in both the voice and map conditions we attempted to incorporate what we and others had learned about improving navigational aids. To measure the amount of improvement in the customized route map condition and vocal instructions condition requires a control condition. We reasoned that the normal state of affairs is having the address and town of the destination and a state road map. Additional information is often obtained from people at petrol stations, on the route, etc. Thus, in addition to having a road map and the destination address, drivers in the control condition were instructed to use whatever means they normally would to find the destination. There was one additional experimental condition; drivers received both customized route maps and vocal instructions to determine the extent to which combined spatial and vocal inputs aid performance. In all conditions the basic measures were time and distance to find each location, as well as the number and types of errors made.

2. Method

2.1. PROPERTIES OF THE VOICE INSTRUCTIONS

There are countless ways to give voice instructions. What properties ought they to have? Unfortunately, people commonly give ambiguous, vague or incorrect directions (Riesbeck, 1980). Often one is assured that "you can't miss it". However, one often "misses it". Cues that are salient to the person familiar with the route are often not salient to the first-time, over-stimulated traveller.

2.2 AVOIDING AMBIGUITIES AND MEMORY ERRORS

We examined a number of Bell Laboratories employees' descriptions of how they drove from work to home. Common to these descriptions, and probably to most descriptions that one receives, were statements such as "turn at the fifth light", "go for 10 blocks and turn". Often, we found these descriptions to be wrong or difficult to interpret. People's memory for "largish" numbers (i.e. greater than three) is often wrong and, similarly, drivers following such directions are apt to lose track of the number of traffic lights or blocks. It is often difficult to know what the instruction-giver means by a block. Does a road intersecting only one side of the street constitute a block? Also, it is often ambiguous at what point one starts counting lights or blocks. Does the count begin after the starting point or is the first light or block "number one"? For these reasons, we decided to avoid instructions that depended on counting objects.

2.3. ERROR RECOVERY

In general, people's working assumption is that they will not make a mistake or lose their way. (In programming this is known as, "I found the last bug".) Because of this undaunted optimism, people's directions rarely include information that would allow them to determine if they had made an error. We decided that good instructions should include this sort of information.

2.4 PREFERENCE FOR LANDMARKS

Since people indicated that they relied heavily on landmarks for navigation, we decided to give preference to "notable" landmarks over street names. Street names are difficult to read from most street signs, even if the street sign is present and oriented in the appropriate direction.

Initially, we included intermediary landmarks between turns, since it would assure drivers that they were on course. However, during preliminary testing, we found that if an intermediate landmark was missed, the driver ceased looking for the next turn and continued to look for the missed landmark. We selected landmarks that could reasonably be expected to be in a business/places data base. In our case, we used landmarks, if they were: (1) situated on corners, (2) were a business, church or apartment complex, and (3) were listed in the telephone directory.

2.5. INTERTURN DISTANCES

Probably the major reason people give directions in terms of number of blocks or traffic lights is that they don't know exact mileages, while blocks and traffic lights are units that are available. However, if one has access to a good data base, one can give instructions in terms of exact mileages. We decided to give interturn mileages in tenth of a mile units, since we thought that other units, such as feet or yards might not be readily translatable into a useful metric unit. In fact, we were surprised to find that some people had to be told what tenths were and what miles were on a standard odometer.

2.6. FACILITATING MEMORY FOR THE PRIMARY INSTRUCTION

The basic or critical instruction that the driver must remember contains three facts: (1) turn left or right; (2) in some specified distance; (3) onto a particular road. One of the largest and most robust effects in the learning and memory research is that

spacing of practice greatly facilitates recall; repeating the to-be-remembered item with no intervening items has about the same effect on later recall as presenting the item *only once*, whereas repeating the item after presenting a number of other items increases later recall by two to one over the singly presented item (Rothkopf & Coke, 1966; Melton, 1970). We used the "spacing of practice" principle in constructing vocal instructions. The sentence containing the critical pieces of information (turn direction, distance and street name) was the first and was repeated as the last instruction. In addition to being spaced, the first and last position are the two best list positions in terms of later recall. Thus, from spacing and serial position effects, one could expect recall to increase over other instruction orderings or arrangements.

In summary, verbal directions were designed to:

Give information the driver wants to know—distance between turns, street to turn onto, and direction of turn.

Inform the driver of an approaching turn.

Indicate error conditions, i.e. when the driver has gone too far.

Repeat the most essential instruction to aid memory.

TABLE 1
Direction rules

-
1. Critical direction:
Left or right instruction:
 Drive for {X.X} miles
 to {street_name}
 and turn {left|right}.

Continue instruction:
 {street_name 1} changes name
 to {street_name 2}.
 At {X.X} miles turn
 {left|right}
 onto {street_name 3}.
 2. When to turn instruction:
If a landmark is available, then:
 {landmark} is on the
 {left (corner)|right (corner)}
 straight ahead.

*else, select the street before
 on the same side as the next turn.*
 {street_before_name} is the
 street before {street_name}.
 3. Too far instruction:
 If you come to
 {landmark|major_street},
 you've gone too far.
 4. Summary instruction:
 Remember it's {X.X} miles to
 your {left|right} turn
 onto {street_name}.

Table 1 shows the basic format of the instructions. Preference was given to landmarks as indicators of when a turn was approaching. There were a few variants on this canonical instruction set—namely T-junctions, complex junctions (the junction of more than two streets), and turns that were separated by a tenth of a mile or less. For T-junctions, the “too far” instruction was omitted. Complex intersections were noted as “the tricky intersection of street x, street y, and street z”. Turns made in rapid succession were described as “a quick right/left onto street x” and combined in one instruction set. The following is an example of a single instruction set:

Drive for one mile to the tricky intersection of Boradway, Norwood Ave., and Bath Ave. Turn right onto Bath.
The Shadow Lawn Savings and Loan Co. is on the right corner.
If you come to Third Ave., you've gone too far.
Remember: it's one mile to your right turn onto Bath.

Table 1 gives the rules that generated the instructions as well as the text of the instructions.

2.7 TAPE RECORDER.

A car tape recorder with a “music sensor” that detected silent gaps greater than three seconds was modified to stop at the end of an instruction. Instruction tapes were made with 4 second silences separating each set of instructions and with a 2800 Hz tone at the end of each instruction set. Thus, the “music sensor” made it possible to find the beginning of an instruction, whereas the tone detection circuitry stopped the tape at the end of each instruction.

There were two controls on the tape recorder: a “play” button for playing the next instruction, and a “repeat” label placed under the tape recorder's rewind button. To repeat an instruction, the repeat button was depressed to rewind the tape to the beginning of the instruction; the play button was then depressed.

2.8. SUBJECTS

All 57 participants were unfamiliar with the Monmouth County area. The subjects were divided into two groups. Group 1 consisted of 31 women and three men who lived within a 60 mile radius of Murray Hill, New Jersey, and were not familiar with the area in which testing was to be done. Group 2 (professionals) consisted of 20 males and nine females whose profession required extensive driving. There were fewer professional subjects in the both (map plus tape) condition than in the other conditions, since the supply of professional subjects was limited and this condition was less critical than the map or tape condition.

Group 1 was selected from volunteers who had expressed previous interest in participating in experiments at Bell Laboratories. Group 2 was recruited through an advertisement placed in a local northern New Jersey newspaper. They were also unfamiliar with the area in which testing was to be done. The purpose of the advertisement was to find people who drove extensively in their profession, the contention being that they would be familiar with reading maps, following directions, and locating destinations in unfamiliar territory.

2.9. PROCEDURE

Subjects provided some personal information and completed a spatial ability test (the building memory test, Ekstrom, French & Harmon, 1976) before the driving test. After the driving test was completed, a questionnaire was administered to subjects who used the tape cassettes and/or the customized map. They were asked to compare the navigational aid they used to ordinary road maps. They were also asked what they liked most and least about the particular method they used.

Seven routes were used in the experiment; these were actual routes driven by Crawford Hill employees from the Crawford Hill location to their homes. The routes ranged in distance from 3–20 miles. The routes were divided into three road categories: limited access, moderately difficult local routes, and complicated local road routes. A limited-access route was one that used the Garden State Parkway for more than 50% of the distance. There were two routes in each category. For each experiment, four routes were driven. All subjects drove the same first simple route, which measured 4 miles, involved three turns, and was used as an orientation. One route was selected from each of the three categories to complete the set. The limited-access routes each had seven turns; the complicated local routes each had 13 turns, and the moderately difficult local routes each had six turns. Routes were balanced across groups of eight subjects. Other than the same initial first route, the order of the other three routes was randomized.

The four navigational conditions were: (1) taped instructions, (2) customized route maps, (3) a taped instruction and customized route maps, and (4) a control condition (one of two New Jersey road maps plus the address and town of each destination). Each subject participated in only one of the four conditions.

There was one cassette per route. Subjects operated the tape recorder, deciding when to play the next instruction and when to repeat instructions. The instructions were recorded by a female speaker. Subjects were given a typewritten sheet of instructions for operating the tape recorder, consisting of a sentence describing how to play the

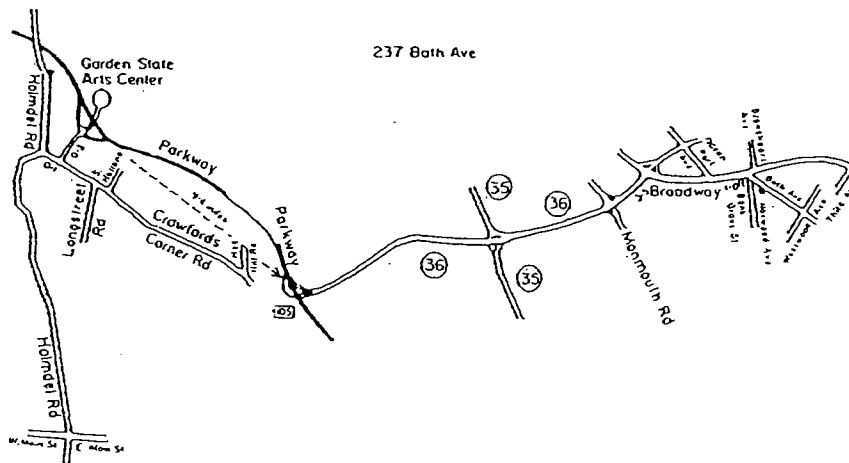


FIG. 1. Sample route map.

next instruction and another sentence describing how to repeat the last instruction. They were then given a few minutes to practice operating the recorder.

The customized route maps were four-colour schematic maps showing the route to be travelled in red. The maps contained the same information as the tape cassettes, i.e. mileages, landmarks, streets before the next turn, direction of turn and major streets beyond the turn. Limited-access roads were shown in green, secondary roads in yellow and local roads in white. All of the maps were drawn to scale and enclosed in plastic. Subjects were told about the conventions used on the maps—the colour-code system, interturn mileages, etc. Figure 1 shows a sample route map, albeit without colour.

In the control group, the subjects were given the map and an address, and instructed to find their way using whatever means they would normally use if they were by themselves.

The measures recorded were time (to the nearest second) and distance. When the subject completed a turn on the route, the time was noted. In the case of the New Jersey roadmap group, when any turn was completed, the time was noted. Mileage was recorded at the beginning and end of a route. In addition to recording total mileage driven, a note of the distance travelled beyond a destination was also recorded. The distances were calculated from records of landmarks and street addresses at the point of error. After the experiment was completed, an experimenter redrove the routes, measuring the distances.

In addition to recording time and distance, the experimenter recorded the number of turns, number of repeats of the taped instructions, number of referrals to the map, the number of errors for each instruction, and a description of each error. Typical errors were passing the destination, turning in the wrong direction, and turning onto the wrong street. Each occurrence counted as one error.

The automobile used was a 1983 Mercury Marquis sedan fitted with a pushbutton trip odometer to keep track of distances between turns, automatic transmission, and a comfortable back seat to accommodate the experimenter. The tape recorder was positioned on the front passenger's seat within easy reach of the driver. The experimenter sat in the back seat, directly behind the driver, and was not visible to the driver. The drivers were told that they could not ask the experimenter any questions during the study. When drivers asked questions despite this instruction, they were not answered.

3. Results

Table 2 shows means and standard errors of the mean across subjects (based on four routes per subject with each subject in only one group) for each of the major experimental variables. Because conditions differed, not every measure occurs in every condition. The means represent an average per route. Thus, on average, subjects in the taped instruction group drove 11.41 miles per route.

In terms of total mileage, subjects in the control group travelled substantially further than subjects in the other three groups. There was a 28% reduction in mileage for the tape group compared to the control, and a 20% reduction for the map group. However, how do the three groups with a specified route compare to optimal performance, that is, following the specified route perfectly? If performance had been perfect, the map and tape subjects would have driven a total of 10.62 miles per route. Since there were only 11 subjects in the map plus tape group, not all routes were driven equally often.

TABLE 2
Means and standard errors of the Mean (sem) for each measure separately for each condition

Measure	Conditions			
	Tape	Map	Map + tape	Neither
Miles	11.41 (0.29)	12.72 (0.46)	12.00 (0.44)	15.80 (0.38)
Turns	7.25†	7.25†	7.25†	12.7 (0.43)
Time (min)	24.18 (1.15)	26.37 (1.30)	25.55 (0.73)	34.23 (1.30)
Errors	1.12 (0.19)	1.87 (0.21)	1.64 (0.28)	

† Prescribed in the route.

The optimal number for this group is 10.50 miles. The subjects using the tape travelled 7% more than the perfect mileage; those with a map 20% more, and those with map plus tape 14% more. In terms of statistical significance, the subjects in the tape group drove fewer miles than subjects with maps ($t_{30} = 2.47, p < 0.02$). Similarly, using destinations as the unit of analysis rather than subjects, fewer miles were driven in the tape condition than in the map condition ($t_6 = 2.42, p < 0.05$). The map plus tape condition was between the map only and tape only condition and did not differ significantly from either of them ($t_{25} = 0.83$ and $t_{25} = 1.33$ respectively). (The means were corrected for differences in optimal mileage.)

The instructed conditions (tape, map, map plus tape) routes had an average of 7.25 turns. Thus, 12.7 turns in the control condition represents a substantial deviation from the specified routes—over 10 standard errors of the mean.

Not surprisingly, the time measures showed the same rank ordering as total mileage. The control condition took about 34 minutes per route, whereas the tape condition was about 24 minutes, the map condition 26 minutes, and the map plus tape condition 25.5. The difference between the map only and tape only groups in terms of time was marginally significant ($t_{30} = 1.88, p < 0.07$). As might be expected a combined time-mileage z statistic, (z -scores were found for mileage based on the combined tape and map condition and z -scores were found for time, again based on the combined conditions; the two z -scores were then added) was significant ($t_{30} = 2.30, p < 0.025$).

3.1. ERRORS

There were 67% more errors made by the map than by the tape group, and 46% more errors made by the map plus tape group than by the tape alone group. The ordering of the eight error categories forms a continuum from minor to major errors, with the first category being difficulty in locating something. An example of this is looking for a particular house number, which for one reason or another is difficult to see, so that one passes the house. A major error would be never finding the street one is looking for. Table 3 shows the eight error categories and the frequency of each error class for the map, tape, and map plus tape groups. Both frequencies are based on data from 11 subjects, whereas there were 16 subjects in each of the other two conditions.

TABLE 3
Number of errors in each of eight error classes for the map, tape and both condition

Error category	Frequency		
	Map†	Tape‡	Map + Tape‡
(1) Unable to find location while searching	35	33	23
(2) Saw location while driving past	19	18	14
(3) Didn't go far enough on road	2	0	2
(4) Thought on wrong street, but correct	0	1	0
(5) Turned in wrong direction ← →	10	1	1
(6) Turned onto wrong road	31	9	18
(7) Missed location, but not aware of it	15	8	11
(8) Never found correct road	8	1	2

† 16 subjects; ‡ 11 subjects

The frequency of minor errors—categories (one) and (two) differed little between the three groups. The major differences were with respect to what might be thought of as “true” errors. An analysis of the total number of errors in categories three to eight made by each subject, showed that significantly more errors were made by the map than by the tape group ($t_{30} = 2.86, p < 0.01$), (2) by the map than by the map plus tape group ($t_{25} = 2.30, p < 0.05$), and marginally more by the map plus tape than by the tape group ($t_{25} = 1.99, p < 0.06$). Hearing which direction to turn substantially reduced left/right reversals, as compared to gleaning directional information from a map. When using a map as opposed to a tape, people appear to be more likely to turn onto the wrong road, and not to detect an error.

It is surprising that with respect to all measures it was *less useful* to have a tape plus a map than to have a tape alone. For example, in some cases one might recognize the street from the written sign, but not from the spoken name alone. However, these results indicate that, to the extent that the map is used over the tape, there will be errors.

3.2. DIFFERENCES BETWEEN PROFESSIONALS AND OTHERS.

Half of the tape, map, and control subjects were people who had earned or were currently earning their living driving to unfamiliar destinations. (Only three of the eight map plus tape subjects were professionals.) We were unable to identify differences between the two groups in terms of their driving performance. Differences with respect to total mileage and time between professionals and nonprofessionals in the tape and map conditions were negligible—less than two-tenths of a mile in either the tape or map condition; there was a 1.9 minute time difference in the tape condition (professionals took longer) and a 15 second difference in the map condition.

3.2.1. Post-test questionnaire results

Subjects in the map, tape, and map plus tape groups were asked to compare the navigational aids used in the experiment with a standard road map; those in the map plus tape group were asked to compare custom route maps directly to tapes. Ratings

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were on a one to nine scale. Subjects in the map-only and map plus tape groups preferred the custom drawn maps to standard road maps (medians 7 and 9 respectively). In the map plus tape group, tapes were much preferred to the custom drawn maps (median 9). Similarly, the tapes were preferred to ordinary road maps in both the tape only and tape plus map groups (median 8).

Responses for what subjects liked most and liked least about the tapes and maps were tallied for the map, tape, and map plus tape subjects. If three or more subjects (roughly 10%) either disliked or liked a particular feature, it was included in Table 4.

TABLE 4
Most frequently mentioned attributes that were either liked least or liked most about tapes and maps (n = 27)

Taped instructions	Frequency	Route maps	Frequency
<i>Liked least</i>		<i>Liked least</i>	
Too much information	5	Too little detail	6
Too far instruction	4	Too few landmarks	5
Tape had to rewind to repeat	3	No north/south on map	4
Needed more detail	3	Inaccuracies	3
Overview missing	3	Print small in places	3
<i>Liked most</i>		<i>Liked most</i>	
Easier to use than other means	9	Simplified	8
Instructions clear/detailed/accurate	8	Mileages between turns	7
Unlike with map, can keep driving	6	Color	4
Critical instruction repeated	5	Direct routes given	4
Mileages between turns	3	Route marked	3

The same characteristic sometimes appeared both on the complaint list and the praise list. For example, with respect to the tapes some felt there was too much information and others thought more detail was needed. With respect to the maps, the major criticism was that there was too little detail and what was liked most was the simplicity of the maps. While some of the discrepancy may be due to different people wanting different types of information, these comments may also indicate areas for improvement. For instance, it appears that people would like some overall orienting information on the maps—where some major cities are, where north is (although the maps were oriented with respect to north and south). However, one should probably take care not to clutter the map.

3.2.2. *Not liking what's good for you*

In the tape condition, many people disliked the "too far" instruction. This was explicitly mentioned in some cases, but the comment, "too much information" may have referred to the "too far" instruction in some cases. While unpopular, this instruction probably helped the drivers in the tape condition, since they drove fewer miles per route past

turning points than drivers in the map condition ($t_{30}=2.26, p<0.05$). (The difference between the tape and the map plus tape condition was not reliable.)

While the vocal directions provide no overview of the route to be travelled, having this information, as the map plus tape conditions had, did not improve performance. The things that were liked most about the tapes were that one could drive and navigate at the same time and that the instructions were clear. There were three complaints about inaccuracies in the map condition: one subject cited mileages, another said the shape of turns was distorted, and a third just said, "inaccurate". However, there was no unified complaint, and given the way the maps were constructed, these complaints reflect subject misinterpretations or errors.

3.2.3. How people in the control group obtained information

People in the control group were instructed to use whatever means they normally used to find their way. Only one of the 16 subjects, who used to locate people for the IRS, purchased a county road map, which showed the location of all streets in Monmouth County. The other subjects asked people for directions. There were 85 enquiries: 47 at garages, 14 at municipal buildings (post offices, police stations, etc.), four at shops, four at toll booths; 10 passers-by or workmen were asked as well as four postmen and two policemen.

Discussion

In terms of performance the groups ordered themselves from best to worst as follows: (1) taped or voice instructions; (2) both taped instructions and customized route map; (3) customized route map, and (4) the control condition (state road map plus address and city of destination). The above order remained the same for three measures: total distance, total time, and number of errors. Thus, the taped instruction condition produced fewer errors, was driven in fewer miles, and took less time.

One might have predicted *a priori* that two sources of information would be better than one, and thus, that the tape plus customized map condition would fare best. It appears, however, that having both a map and the taped instructions may have provided too much information, and further that attending to the map for decisions as to where and when to turn produced errors.

One potential drawback of the taped instructions is that the overall plan of where one is going is unavailable. However, this does not seem to have impeded performance. In the map plus tape group, where the overall plan was shown, performance was worse, not better, though not significantly for some of the measures. The taped instructions mimic a good navigator sitting next to the driver, giving warning of how to know when a turn is approaching, in which direction to turn and onto which street. The driver need only follow instructions. One subject even remarked that the reason she liked the tapes was that it was like having company in the car.

Care was taken to make the voice instructions terse—just critical information and no more. Even so, some subjects thought too much information was presented and particularly disliked the "too far" instruction. Whether this instruction was responsible for tape subjects making fewer "too far" errors than map subjects was not directly tested, but certainly seems to be a most tenable explanation.

Before this experiment, one might have thought that people's map reading errors reflected poorly constructed maps. However, given the highly abstracted form of the maps, and the fact that the route was shown on the map, it is not apparent how to improve the spatial representation beyond what was done here. When engaged in an attention-demanding task, such as driving, it is difficult to use a common channel (here vision) to interpret a map, no matter how simply the map is drawn. Also, many people do not use maps in finding destinations and thus are not used to using them, even if their job is to drive to new locations. Some of our professional subjects reported that they did not use maps in their jobs; they relied on information from others to find destinations.

Thus, using the auditory channel for directional information appears to be ideal on many counts. However, we would claim that our success was not solely attributed to using auditory instructions, but was in large measure due to the nature of the instructions. We would contend that representative oral instructions, such as the type one usually gets from people, would not have produced such good performances. Two factors may have contributed to the efficacy of the instructions: (1) our instructions were guided by findings from previous research on navigation as well as basic psychological findings; (2) even given the general principles of what needs to be communicated and an awareness of the pitfalls of most verbal directions, the precise wording of the instructions was the result of "designing, testing, and iterating." There is no guarantee that our rules for generating instructions are the best possible, only that they appear to work effectively, are easy to generate, and require information that might reasonably be expected to be contained in a good geographical data base.

3.2.4. Implications for navigational aids

Given the superiority of voice instructions over maps shown by this experiment, a suitable interface to a navigational guidance system ought to be voice-oriented. To implement such a system requires a computer-stored, geographical data base and a way to search such a data base for a route between two points. This is clearly possible with current technology. Owing to the current size of these geographical data bases, it makes sense to have them stored at a general site, which could be accessed by a mobile telephone. Given a route, text instructions could be generated and transmitted to an in-car computer and converted to voice by a resident text-to-speech synthesizer chip. Unlike the situation in the present experiment, a car computer instead of the driver would keep track of interturn mileages and signal the driver of an approaching turn. With an inertial guidance system communicating with a geographical data base, it would be possible to determine when the driver had made an error. Thus, knowledge of the road system would make it possible to reinitialize the driver's position, which is not possible using only an inertial guidance system. Information on how to correct one's error could be transmitted to the car in the same manner as the original text instructions. The technological possibilities are numerous, but the critical point is that the navigational information should be presented vocally.

We thank Patrick Fitzgerald and Bernard King for engineering two models of the special purpose tape recorder. Fran Shinderman and Judy Healy are gratefully acknowledged for their superb job of subject recruiting.

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United States Patent [19]

Thoone et al.

[11] Patent Number: **4,758,959**[45] Date of Patent: **Jul. 19, 1988**

[54] **VEHICLE NAVIGATION SYSTEM PROVIDED WITH AN ADAPTIVE INERTIAL NAVIGATION SYSTEM BASED ON THE MEASUREMENT OF THE SPEED AND LATERAL ACCELERATION OF THE VEHICLE AND PROVIDED WITH A CORRECTION UNIT FOR CORRECTING THE MEASURED VALUES**

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[73] Assignee: **U.S. Philips Corporation**, New York, N.Y.

[21] Appl. No.: **772,062**

[22] Filed: **Sep. 3, 1985**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 690,063, Jan. 9, 1985, abandoned.

Foreign Application Priority Data

Aug. 14, 1984 [NL] Netherlands 8402497

[51] Int. Cl.⁴ G06F 15/50

[52] U.S. Cl. 364/454; 364/449; 73/178 R; 340/990

[58] Field of Search 364/449, 436, 565, 566, 364/443, 453, 454, 450; 73/178 R; 340/990, 995; 343/450, 451

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Primary Examiner—Parshotam S. Lall

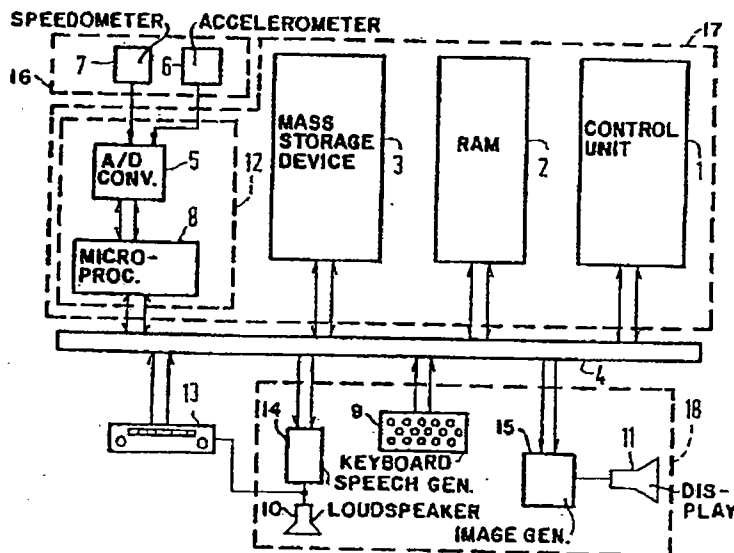
Assistant Examiner—Thomas G. Black

Attorney, Agent, or Firm—David R. Treacy; Bernard Franzblau

[57] ABSTRACT

A navigation system for a road vehicle comprises a route-determining unit and position-locating means. The route-determining unit works together with a mass memory which stores geographic data of a road network. The route-determining unit determines a driving route between a starting point and a destination supplied by the driver of the vehicle. The position-locating devices determine the vehicle position coordinates recurrently from the speed and acceleration of the moving vehicle provided by a measuring unit. A correction unit derives a correction vector for correcting the generated vehicle position coordinates. The correction vector is determined by performing a transposition of the generated vehicle position coordinates to an actual road position as repeated by coordinates of the road network stored in the mass memory. An acceleration operator is derived from the measured speed and lateral acceleration and from the generated vehicle position coordinates. The acceleration operator operates on the correction vector in order to derive a correction value for the measured acceleration. A receiver receives position coordinate signal from a navigation satellite. A Kalman filter mixes the vehicle position coordinates with the position coordinates originating from the navigation satellite.

17 Claims, 8 Drawing Sheets

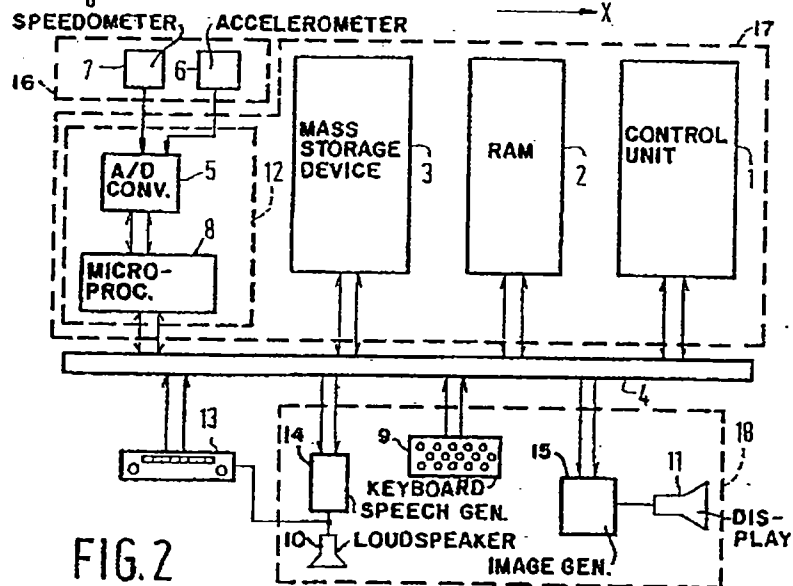
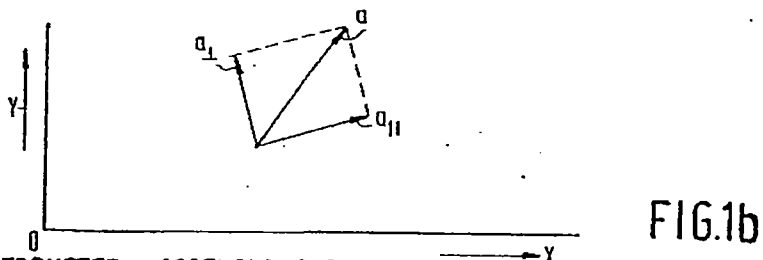
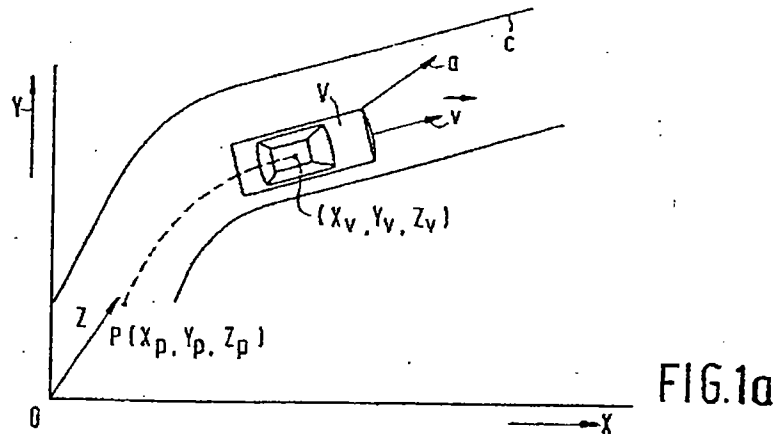


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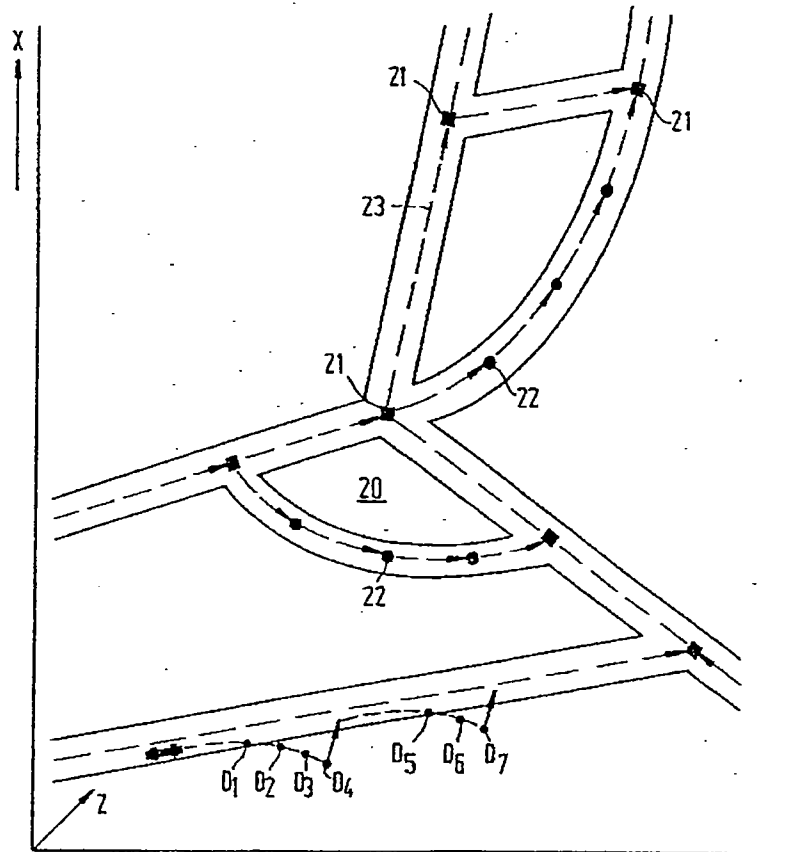


FIG. 3

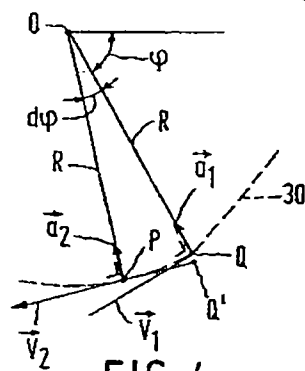


FIG. 4

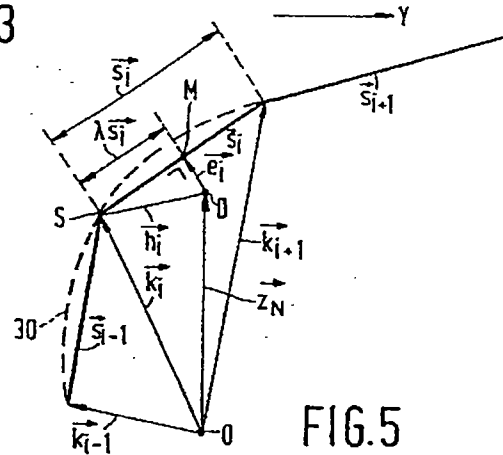


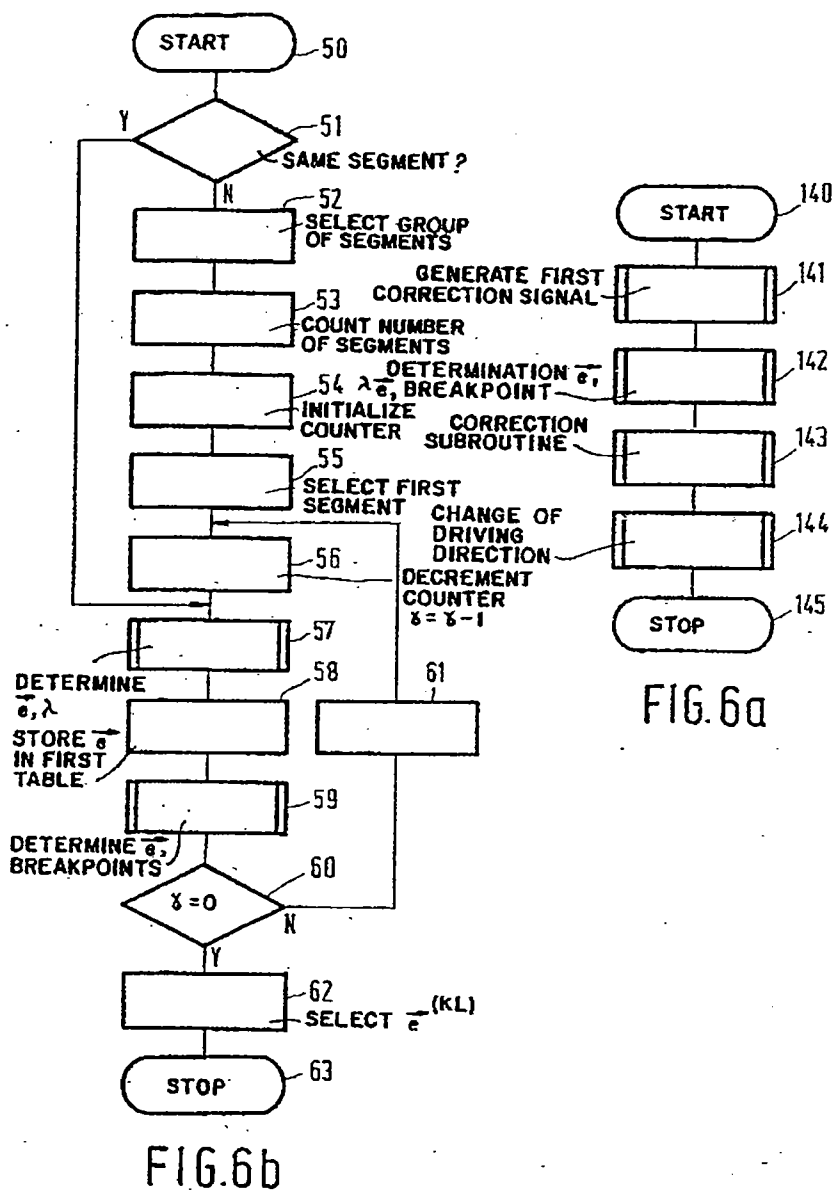
FIG. 5

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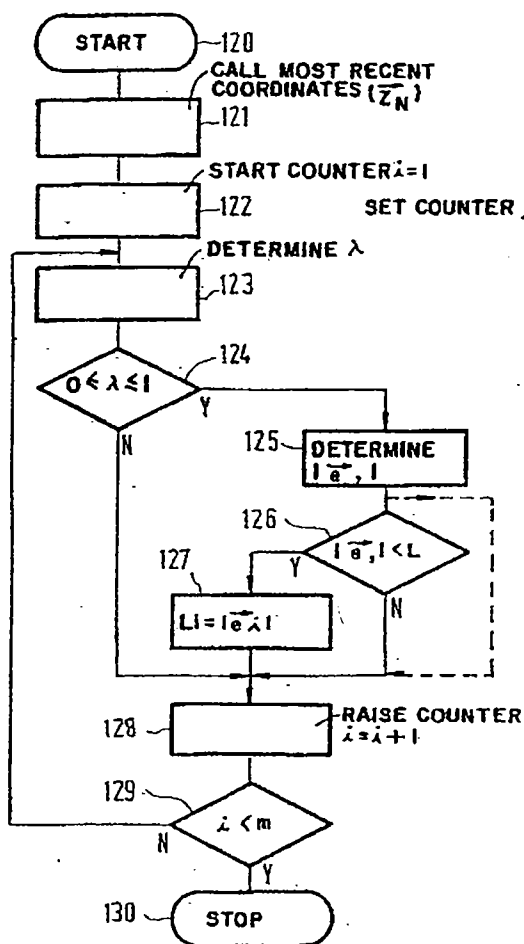


FIG. 6c

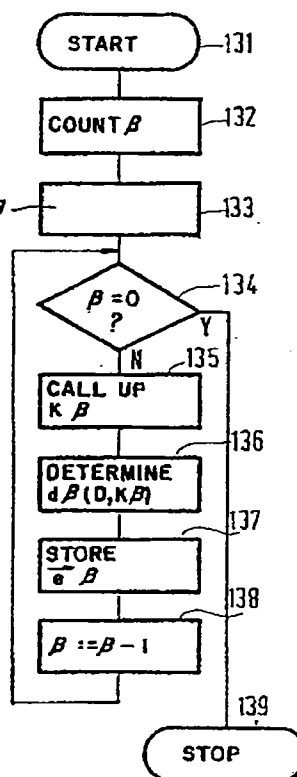


FIG. 6d

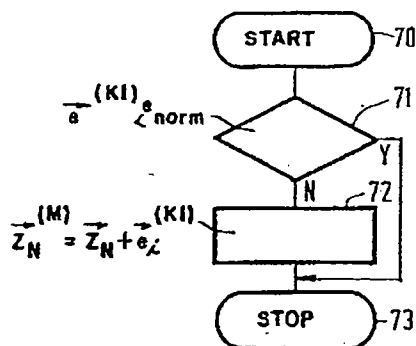


FIG. 6e

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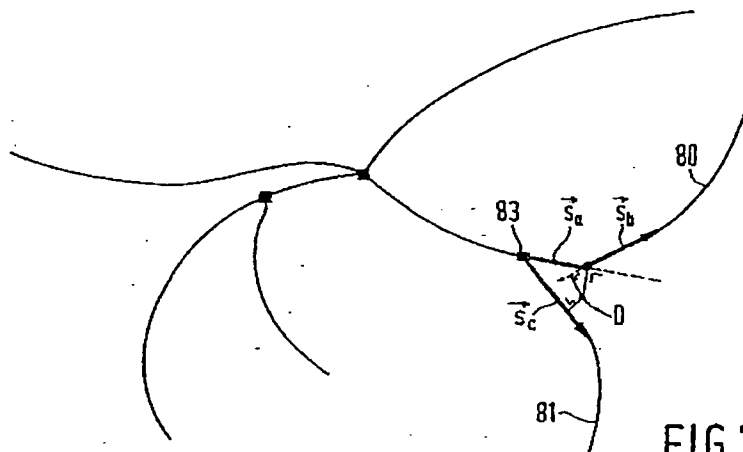


FIG. 7a

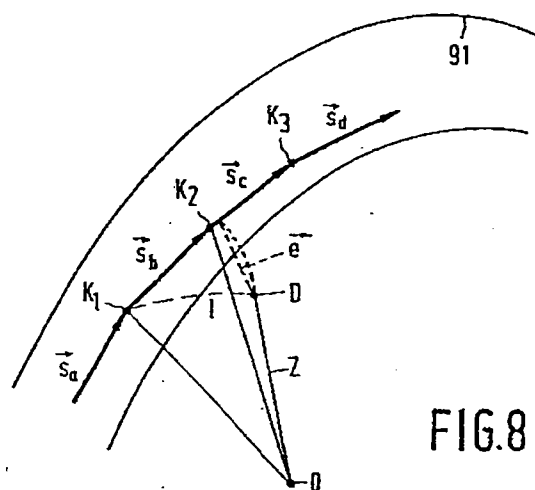


FIG. 8

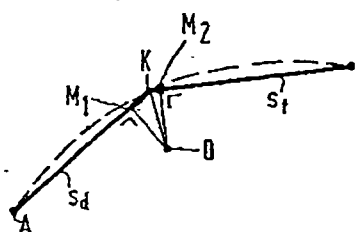


FIG. 7b

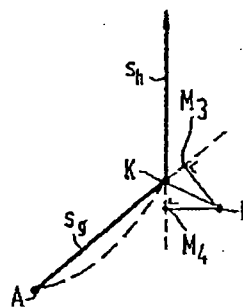


FIG. 7c

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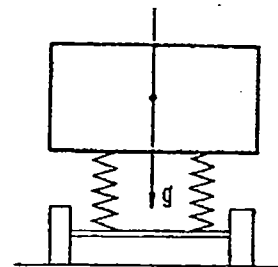
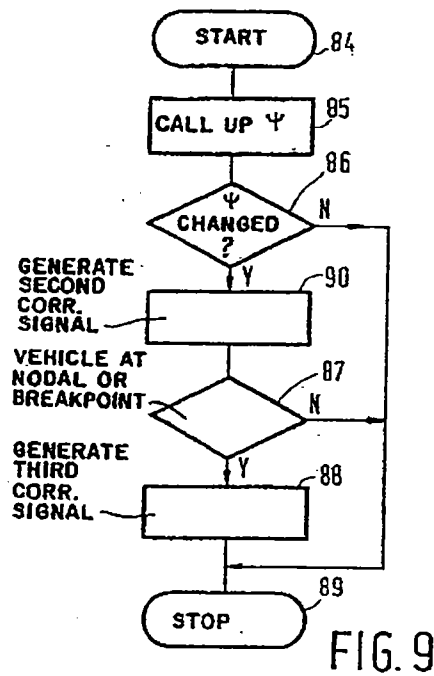


FIG. 10a

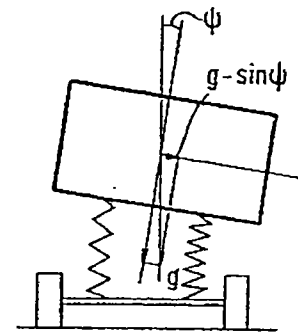


FIG. 10b

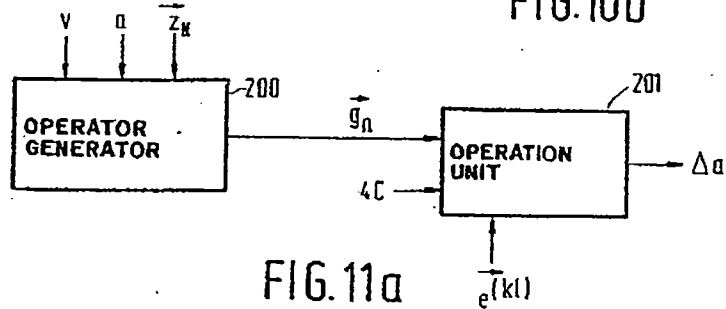


FIG. 11a

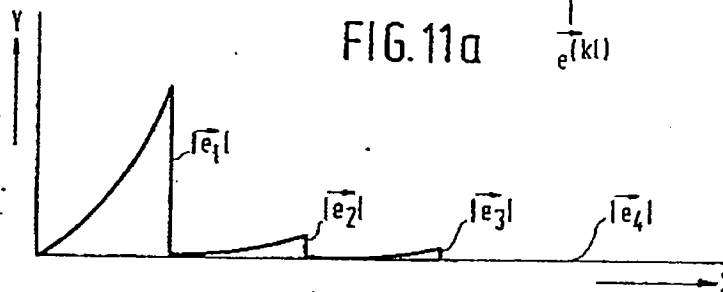


FIG. 12

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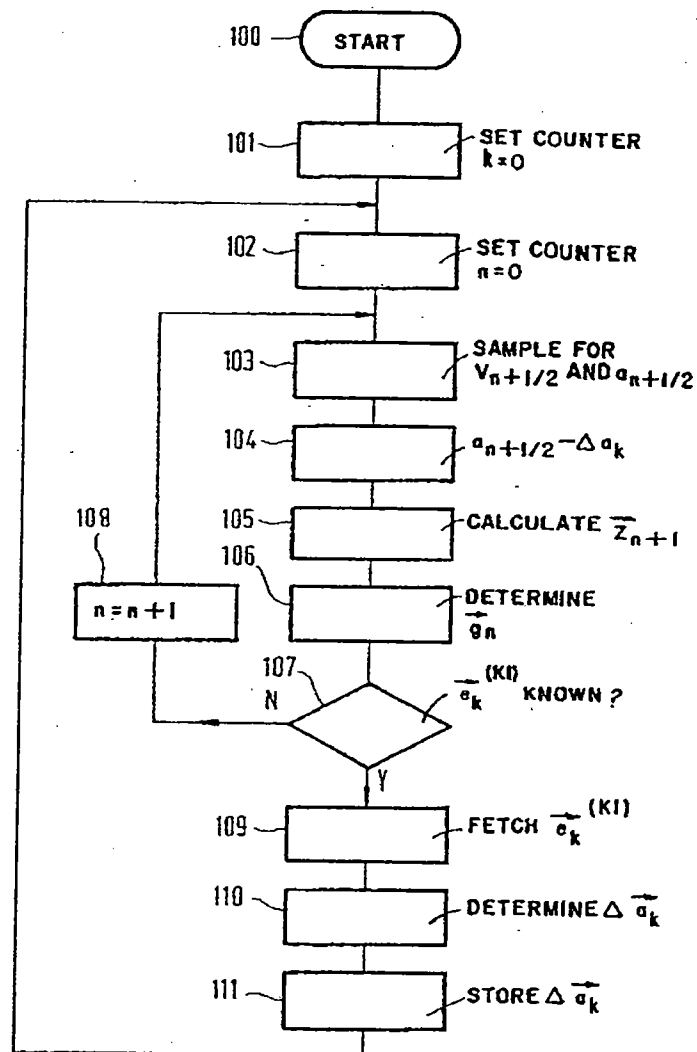


FIG. 11b

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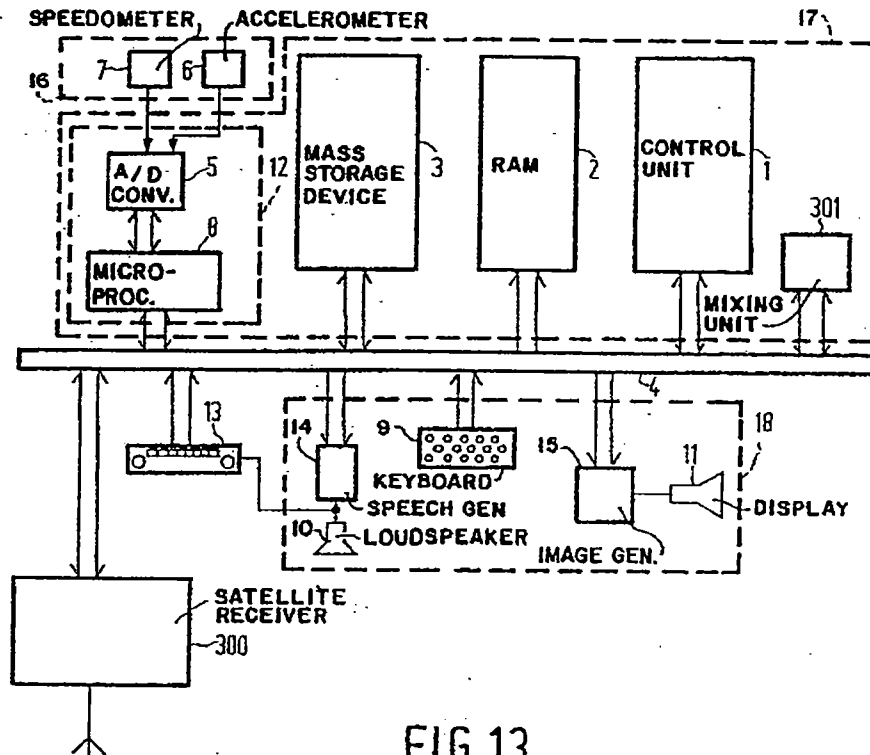


FIG. 13

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**VEHICLE NAVIGATION SYSTEM PROVIDED
WITH AN ADAPTIVE INERTIAL NAVIGATION
SYSTEM BASED ON THE MEASUREMENT OF
THE SPEED AND LATERAL ACCELERATION OF
THE VEHICLE AND PROVIDED WITH A
CORRECTION UNIT FOR CORRECTING THE
MEASURED VALUES**

This is a continuation-in-part of application Ser. No. 690,063, now abandoned, filed Jan. 9, 1985.

This invention relates to a navigation system for a road vehicle, comprising a measuring unit which has a speedometer and which is linked with a central unit, a communication unit connected to the central unit for the input of a starting position and a destination and for the display of a driving route between starting position and destination. The central unit contains a mass storage device for storing geographic data of a road network. A control unit and position-locating devices are provided which are all connected with a common communication line. The control unit contains a route-determining unit for determining a driving route between the starting position and the destination by making use of the geographic data from the mass storage device. The position-locating devices have a first input which is connected with an output of the measuring unit for receiving measurement data and are provided in order to determine from the measurement data, after receiving the starting position, successive vehicle position coordinates and the driving direction of the vehicle in motion.

A navigation system of this kind is known from the article "Elektronischer Wegweiser, Ein Navigationssystem für Städte" published in the Journal Funkschau 23, 1983, pages 48-50. The navigation system therein described contains a mass storage device in which the geographic data of a road network, for example that of a town, are stored. By means of a communication unit which contains for example a keyboard, the driver of the vehicle makes his starting position and his destination known to the navigation system. Under the control of the control unit and by making use of geographic data of the road network, the route-determining unit determines a driving route which indicates the path to be followed between starting position and destination. The position-locating devices receive from the measuring unit the speed of the vehicle measured by the speedometer and the speeds of revolution of both rear wheels measured by wheel sensors. The position-locating devices determine therefrom the vehicle position coordinates and the driving direction from the difference in the speeds of revolution of the rear wheels. By comparison of the vehicle position coordinates with the geographic data that pertain to the driving route, the progression of the vehicle along the driving route can be followed and the correct navigational instructions can be communicated to the driver via the communication unit.

A disadvantage of the known navigation system is that the determination of the vehicle position coordinates and the driving direction is realised by measurements done with the aid of sensors which are fixed to both rear wheels of the vehicle. The determination of the driving direction from the difference in speed of revolution of the rear wheels is inaccurate because it is dependent on too many factors, such as for example wheel spin and unequal tire pressure, which factors are

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mutually incapable of correction. Another way of determining the driving direction is to use a magnetic compass. However, the bodywork of the vehicle and driving past objects that contain a large amount of iron disorient the compass.

An object of the present invention is to provide a navigation system whereby the position of the vehicle can be accurately determined with the position-locating device without the mentioned disadvantages occurring.

A navigation system in accordance with the invention is characterized in that the measuring unit contains an accelerometer for measuring the lateral acceleration of the vehicle and that position-locating means are provided in order to generate recurrently from the measured lateral acceleration and speed of the vehicle the successive vehicle position coordinates and the driving direction of the vehicle in motion.

An accelerometer is simple to implement and moreover correction of the measured signal can easily be determined since the measured acceleration signal is influenced by parameters that can be calculated. Further, the measurement of the lateral acceleration has the advantage that it is relatively easy to determine therefrom the driving direction. For of course the lateral acceleration is a yardstick of the change of direction of the vehicle.

The use of an accelerometer for determining the lateral acceleration of the vehicle and deriving position coordinates therefrom is in itself known from the U.S. Pat. No. 4,254,465. However, in the system therein described no use is made of a mass storage device and there is no route-determining unit. In a system in accordance with this U.S. patent the vehicle position coordinates are not determined solely from the measured speed and lateral acceleration.

The invention further relates to a navigation system which contains a correction unit connected to the communication line for determining a correction vector that gives the deviation between the vehicle position coordinates generated with position-locating devices and road position coordinates for a corresponding position on a part of the road which are originated from said mass storage device, and for correcting therewith the generated vehicle-position coordinates.

The correction unit periodically compares the vehicle position coordinates with road position coordinates representing the geographic data along the driving route. As a result of all kinds and causes of error, such as for example inaccuracy of the speed signal and drift in the electronics, considerable deviations may sometimes arise between the position of the vehicle as determined by the position-locating devices and the real position of the vehicle on the road. The correction unit determines a correction vector which gives the deviation between the vehicle position coordinates and stored road position coordinates for a corresponding position on a part of the road which is derived from the geographic data. This correction vector is then used for applying a correction to the vehicle position coordinates.

A navigation system in accordance with the invention is further characterized in that the geographic data of the road network contain a set of segments whereby each segment represents from the road network a part of the road that is bounded by two nodal points and is identified at least by the coordinates of these two nodal points, and which correction unit is provided with transposition means for determining, under the control

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of a first correction signal generated by the control unit, for each segment from a group of segments situated within a given radius around a generated vehicle position coordinate, a transposition of the generated vehicle position coordinate to transposed position coordinates for a transposed vehicle position situated near the relevant segment, which transposition means are further provided for generating the correction vector that gives the distance between the calculated vehicle position and its transposed positions. The correction unit is further provided with selection means for selecting from these generated correction vectors that vector which has the smallest distance among the said distances that belong to the same group. The correction is made on the basis of the selected correction vector.

The arranging of the geographic data relating to the road network in a set of segments and the assigning of coordinates to those segments makes it possible to compare the generated vehicle position coordinates with coordinates from those segments. This comparison is done by the transposition means which transpose the generated vehicle position coordinates to coordinates pertaining to a group of segments situated near the generated vehicle position coordinates. For each segment from the group, a transposition is determined and upon each transposition the distance between the generated vehicle position and the transposed vehicle position is determined. That distance then gives a correction vector which indicates the correction that must be applied to the generated vehicle position coordinates. In order to determine to which of the segments of the said group the generated vehicle position coordinates belong, a selection must be made between the generated correction vectors. This selection is done by the selection means, which select the correction vector with the smallest value. In this way a correction unit is realised with which, in a relatively simple manner and on the assumption that the vehicle is able to move only along the road, corrections can be applied to the generated vehicle position coordinates. Further, since the vehicle position coordinates are determined recurrently, use can be made of the corrected vehicle position coordinates when determining subsequent vehicle position coordinates so that cumulative error effects are eliminated. So a dead reckoning system is then formed.

A first preferred embodiment of a vehicle navigation system in accordance with the invention is characterized in that segments for parts of roads which run along a straight line form a first subset of the set of segments, and whereby the straight part of a road is represented by one section, and whereby the transposition means perform a transposition by determining the perpendicular projection of the generated vehicle position coordinate onto the section of the relevant segment, and validates the transposition when the transposed position is a point of that section.

A second preferred embodiment of a vehicle navigation system in accordance with the invention is characterized in that segments for parts of roads which follow a curved line form a second subset of the set of segments, the curved part of a road is divided into a number of sections, whereby the transposition means perform a transposition by determining the perpendicular projection of the generated vehicle position coordinate onto at least one section from the said number of sections and declares the transposition to be valid when the transposed position is a point of one of the sections.

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The subdivision of the set of segments into a first subset containing the straight parts of the road network and a second subset containing the curved parts of the road network gives a refinement in the distribution which simplifies the transposition. For of course by dividing the part of the road network by one (straight road) or more sections, a perpendicular projection can be made from the generated vehicle position coordinate onto such a section. The determination of a perpendicular projection onto a section is simple to realise under control of a microprocessor. The selection for determining in respect of which segment of the said group the generated vehicle position coordinate belongs is improved in this way, namely by ascertaining whether the perpendicular line from the calculated vehicle position does in fact bisect a point belonging to the section and not a point situated on an extension of the section. For, if the point of intersection lies in the extension of the section, then this is not a point that belongs to the part of the road and thus the transposition cannot be regarded as being valid.

A third preferred embodiment of a navigation system in accordance with the invention is characterized in that the point of intersection of two successive sections from the said number forms a breakpoint and the transposition perform a transposition by determining the distance between the calculated vehicle position coordinates and at least one breakpoint.

In the case of curved parts of the road this offers a supplementary possibility for performing the transposition and thus increases the accuracy of the navigation system.

A fourth preferred embodiment of a navigation system in accordance with the invention, whereby for each segment the axis of the appertaining part of the road is parametrised by means of at least one section, is characterized in that the transposition means perform a transposition by determining the distance travelled between a reference point of the relevant segment and the calculated vehicle position coordinate, and subsequently transposing this distance on the sections of the relevant segment, thereby taking the reference point as the point of departure.

When use is made of an accurately calibrated speedometer, the path travelled can accurately be determined. The accurately determined path travelled is then transposed to the part of the road, which then quite simply gives the transposed coordinates. When the vehicle is provided with a calibrated speedometer, this system provides a very attractive and easily implemented solution which, in addition, possesses a relatively high accuracy.

A fifth preferred embodiment of a navigation system in accordance with the invention is characterized in that the central unit, connected with the position-locating means, contains detection means which are provided in order to detect from the driving direction, as determined with the position-locating means, large momentary changes in the driving direction of the vehicle and for generating a second correction signal upon ascertaining a large momentary change in the driving direction. The detection devices are connected with the route-determining unit and are provided in order, under control of the second correction signal, to retrieve driving route coordinates and to ascertain whether these momentary driving route coordinates contain the coordinates of a nodal point or a break-point and, in establishing coordinates of a nodal point or a break-point, to

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generate a third correction signal, which transposition means are operable to determine a correction vector under control of a received third correction signal. A large momentary change in the driving direction occurs when the vehicle takes a sharp bend in the road (breakpoint) or when it changes direction at a nodal point. When such a large change in the driving direction occurs and the vehicle is situated in the vicinity of a breakpoint or nodal point, which can be ascertained on the basis of the driving route, then it is possible to replace the generated vehicle position coordinates by those for the breakpoint or nodal point under control of the correction vector. The detection means thus provide a supplementary improvement of the navigation system and so make it more reliable.

A sixth preferred embodiment of a navigation system in accordance with the invention is characterized in that the correction unit contains an operator generator for generating from the measured speed and lateral acceleration of the vehicle and from the generated vehicle position coordinate an acceleration operator. The correction unit further contains an operation unit which has a first input connected with the selection unit for receiving the selected correction vector and a second input connected with the operator generator for receiving the acceleration operator and a third input connected with the control unit for receiving a fourth correction signal. The operation unit is provided for causing the acceleration operator to operate on the selected correction vector under control of the fourth correction signal and for generating therefrom a correction value for the measured acceleration. The generated acceleration operator operates on the selected correction vector and from this a correction value is then determined for the measured acceleration. The determination of a correction value for the measured acceleration makes it possible to correct measuring errors in the acceleration measured with the accelerometer and in this way to produce a more accurate value of the measured acceleration.

A seventh preferred embodiment of a navigation system in accordance with the invention is characterized in that the operation unit has an output connected with the position-locating means for delivering the correction value to the position-locating means, which are provided in order to take up said correction value in the measured lateral acceleration.

Since the vehicle position coordinates are generated from the measured acceleration and speed, whenever a correction is applied with the aid of the correction value to the measured acceleration, the acceleration value will be more accurate and in this way the vehicle position coordinates will also be determined with greater accuracy.

It is advantageous that the central unit contains a non-volatile memory element which contains a control input for receiving an enabling pulse generated upon the stopping of the vehicle and which non-volatile memory is provided for storing the last generated vehicle position coordinates under control of the enabling pulse and for preserving these vehicle position coordinates when the vehicle is stationary. Since the destination of one journey is usually the starting point of the next journey, and since the coordinates of that destination have been determined with great accuracy, it is advantageous to store in the non-volatile memory the vehicle position coordinates that were generated just before the vehicle was stopped. In this way, upon a

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subsequent journey they are then retrieved from the non-volatile memory and the starting point of the next journey is at once known.

A more elaborate embodiment of a navigation system in accordance with the invention is characterized in that the navigation system comprises a receiving unit connected to the communication line for receiving position coordinate signals originating from a navigation satellite, and that the central unit comprises a mixing unit connected to the communication line for mixing, under the control of a mixing signal generated by the control unit, a set of generated vehicle position coordinates with position coordinates received from the navigation satellite. The last-mentioned generated vehicle position coordinates and received position coordinates relate to the same position. The mixing unit comprises a Kalman filter for realizing the said mixing and the mixing unit is connected in the correction unit for receiving the correction value and/or the correction vector.

By combining a satellite navigation system with a dead reckoning navigation system it is possible to determine the vehicle's position more accurately. As a matter of fact, the deviation of the generated vehicle position coordinates is not correlated with the deviation on the position coordinates originating from the satellite. By mixing the two position coordinates which relate to the same position by means of a Kalman filter, optimum position coordinates of the vehicle are determined. The mixing signal ensures that at suitable instants, when, for the same referred position, both generated vehicle position coordinates and position coordinates originating from the satellite are available, they are combined. The Kalman filter also uses the correction value and/or the correction vector for mixing the position coordinates.

The invention will now be further described by way of example with reference to the accompanying drawings, in which:

FIG. 1a shows a vehicle that is moving along a road;

FIG. 1b shows the vector analysis of the acceleration vector of the vehicle;

FIG. 2 shows the main components of a vehicle navigation system in accordance with the invention;

FIG. 3 shows a road network;

FIG. 4 depicts the change in the speed vector and the acceleration vector with a moving vehicle;

FIG. 5 shows a vector diagram for determining the deviation between the actual vehicle position and the calculated vehicle position;

FIG. 6a is a flow chart of a main program for the operations of the correction unit;

FIG. 6b is a flow chart of a subroutine "segment determination";

FIG. 6c is a flow chart of a subroutine "determination of \bar{e} and λ ";

FIG. 6d is a flow chart of a subroutine "determination of \bar{e} , breakpoints";

FIG. 6e is a flow chart of a correction subroutine;

FIG. 7a shows the choice from among different roads of a road network for selecting the road to which calculated vehicle position coordinates belong;

FIGS. 7b and 7c show validity criteria for position co-ordinates transposition;

FIG. 8 shows the parametrisation of a part of a road to be used for transposition of the road travelled;

FIG. 9 is a flow chart of a subroutine "change in driving direction";

FIGS. 10a and 10b show two orientations of a vehicle;

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FIG. 11a gives an example of a hardware implementation for determining the correction values;

FIG. 11b is a flow chart of an a-correction program for determining a correction value to be applied to the acceleration signal;

FIG. 12 gives an example of calculated vehicle position corrections by making use of the program from FIG. 11a and

FIG. 13 shows an embodiment of a vehicle navigation system in which a dead reckoning data processing system and a satellite navigation system are combined.

FIG. 1(a) illustrates a vehicle V that is moving along a road C. The road and the vehicle are localised in a reference system (at rest) with coordinates x, y, z . At each moment the vehicle is situated at a position (x_p, y_p, z_p) in that reference system. The starting position of the vehicle is indicated by the coordinates (x_p, y_p, z_p) of the starting point P. When the vehicle travels at a speed v in the forward direction it also experiences an acceleration a . The acceleration vector a can, as is known for vectors, be analysed into a parallel component $\bar{a}_{||}$ and a component \bar{a}_{\perp} perpendicular to the path of the vehicle. FIG. 1(b) shows this vector analysis. In the further description only the lateral acceleration component \bar{a}_{\perp} will be considered and this will be denoted simply by \bar{a} . Since the lateral acceleration is always perpendicular to the path of the vehicle, it is possible to derive information about the driving direction of the vehicle from the lateral acceleration.

With a land vehicle navigation system in accordance with the invention, use is made of the speed and the lateral acceleration for determining the position at which the moving vehicle is located. The magnitude of the speed v of the vehicle is measured in conventional manner, for example by means of a speedometer. For measuring the scalar value a of the lateral acceleration a , the vehicle is provided with an accelerometer. The principle of an accelerometer is for example described in Proceedings IEE, Vol. 12b, No. 11R, Nov. 1979, IEE Reviews, p 1043-1045. A calibrated speedometer in a vehicle is a reasonably reliable and sufficiently accurate instrument. A simple accelerometer is however not sufficiently accurate, so that corrections to the measured value are necessary. In the further description this correction will be dealt with in more detail.

FIG. 2 shows the main components of a vehicle navigation system for a vehicle built to move over roads on land in accordance with the invention. The vehicle navigation system contains a control unit 1, for example a first microprocessor (Motorola 68000) which is connected to a communication bus 4 for transporting data, addresses and control signals. Also connected to this bus are a working memory 2, for example a RAM, and a mass storage device 3. The mass storage device 3 is formed by a Compact Disc memory (CD-ROM) which can be played on a Compact Disc player which, for example, forms part of a sound installation with which the vehicle is equipped. Stored on this Compact Disc in the form of digital data are geographical data on the road network of a country or a part thereof as well as town maps with street names, sights of interest, hotels etc. of that country. The navigation system further contains a measuring unit 16 provided with an accelerometer 6 and a speedometer 7 (which may possibly be an odometer) which are connected with respective inputs of an analog-digital converter 5. The analog-digital converter 5 is in its turn connected with a second microprocessor 8. The analog-digital converter 5 and

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the second microprocessor 8 together form the position-locating means 12 of the vehicle navigation system. The position-locating means constitute a dead-reckoning data processing system. This second micro-processor calculates inter alia the position coordinates of the vehicle from the speed v and the lateral acceleration a measured by the speedometer 7 and the accelerometer 6. The second microprocessor 8 is likewise connected with the bus 4. Also connected with the bus 4 is a communication unit 18 which contains a keyboard and/or data pad 9. By means of this keyboard and/or data pad the user introduces data into the navigation system. The data are for example the starting position, the destination and possible preferences such as a route via a main highway or a tourist road. The communication unit 18 further contains a loudspeaker 10 which is connected via a speech generator 14 to the bus 4, and further an image generator 15 to which a display device 11 is connected. The loudspeaker 10 may form part of the sound installation with which the vehicle is equipped. Through the loudspeaker and/or the image display device the user is given information on the road to be followed in order to reach the destination. It is not necessary for the navigation system to contain both the loudspeaker and the image display device; one of the two is sufficient. It is also possible to connect the digital output of the car radio 13 with the bus 4. This is particularly advantageous when the car radio is provided for receiving digital traffic information by the Radio Data System (RDS). This traffic information can be taken up in the navigation system and processed therein. In this way, when determining the road to be followed, account can be taken of possible tailbacks, or warnings can be given of dangerous situations such as for example a vehicle travelling in the wrong lane of a motorway or an icy surface. RDS is a system in which digital traffic information can be transmitted on a subcarrier (57 kHz) for the stereo radio signal without interfering with the latter.

An alternative to the keyboard and/or data pad 9 is, for example, a microphone coupled with a speech recognition device in order to give information orally to the navigation system.

The control unit 1, the mass memory 3, the working memory 2 and the position-locating means 12 constitute the central unit 17 of the vehicle navigation system.

Before going further into the operation of the navigation system in accordance with FIG. 2, it is necessary to explain the geographic data stored in the Compact Disc in more detail.

FIG. 3 illustrates a part of a road network 20. The translation of the road data is based on the axes of the roads which are divided into straight line sections. Each line section has a starting point and an end point. To each starting and end point belong coordinates, which represent the coordinates (x, y, z) of a position vector with respect to an origin of a reference system. Each line section can also be represented by at least one position vector in that reference system. Two or more roads intersect each other at a nodal point 21 which is also represented by means of a position vector. The position vectors pertaining to the same part of the road are denoted as a segment. A segment is always bounded by two nodal points. A road network thus contains a set of segments. When the road is a straight road (23) then the segment is represented by only one vector, together with the vector for the two nodal points which bound the segment. When, on the other hand, the road follows

a curved line, then a segment contains in addition a number of breakpoints. A breakpoint 22 represents the initial point of a subsequent position vector which describes a section of a curved road. The straight road segments form a first subset of the set of segments and the curved road segments form a second subset.

Also belonging to a segment are a place name and street name, or a road number, depending on the location of that segment, which are also stored on the Compact Disc. This makes it possible to search on the basis of place and street names or road number. In general such a segment is stored in the Compact Disc by means of a data block. The data block then contains:

the province or the district
the location (town, village, etc.)
street name or road number
coordinates x, y , (and z when working three-dimensionally)

breakpoint coordinates for a curved segment.

weight factor ϕ , characterising the nature of the road.

Thus, for example, a main highway (motorway) is allotted a low weight factor and a shopping street a high weight factor;

the two nodal points of the segment are characterised as such (for example by means of one or more well-determined bit values or well-determined positions in the data block);

an indication of a one-way or two-way street, with direction indication for one-way traffic;

roads that connect to that segment are also included in the relevant data block by means of coding and addresses that refer to other memory locations;

a reference to a location where particular information, such as the presence of traffic lights, obstructions and other topological data of the segment.

Other information can also be stored in the Compact Disc, such as for example addresses (and telephone numbers) of hotels, petrol stations, etc.

The use of a Compact Disc as a mass storage device for a vehicle navigation system offers many advantages, mainly the large storage capacity (main storage: 4×10^9 bits) and the random access capability which makes reasonably rapid retrieval of data possible. The use of a Compact Disc player in a vehicle for inter alia navigation purposes is described in the proceedings of the SAE conference, Detroit, Mich., Feb. 27-Mar. 2, 1984 entitled "Application of the Compact Disc in Car Information and Navigation Systems" by M. Thoone and R. Breukers (Publication number 840156).

When a driver of a vehicle, which is fitted with a navigation system as illustrated in FIG. 2, wishes to use that navigation system, he will begin by entering into the navigation system via the keyboard or data pad 9 his starting position (district, location, street name or road number), and also his destination. The starting position can for example also be called up from a nonvolatile memory designed for the purpose, in which is stored the position last reached by the vehicle as determined from a preceding navigation operation. It is possible to provide the navigation system with a number of options by which the driver can communicate to the navigation system one or more preferences, such as for example a preferred route via a motorway or via a circular road instead of right through a town. Making preferences known is done for example by means of a question and answer dialogue between the navigation system and the driver. The navigation system reports the possible alternatives for example by means of questions which appear

on the display screen 11 and the driver answers via the keyboard 9. In determining the route to be followed the navigation system then takes the driver's wishes into account.

After the driver has communicated the necessary data to the navigation system, the data for a number of segments is then, under control of the control unit 1, called up from the mass storage 3 and stored in the working memory 2. The working memory and the control unit together fulfill the task of a route-determining unit. The number of segments comprises the segments that are needed for determining the route. The purpose of calling up this number of segments is that, when a CD ROM is used as a mass storage, the Compact Disc player need only very briefly be used for navigation purposes, so that the player can be used during the rest of the journey for playing audio discs, and it further serves for retrieval to allow quick and automatic determination of the route.

Determination of the route to be followed and the giving of navigation information to the driver are done in the known manner, as described for example in "Forschung Strassenbau und Strassenverkehrstechnik, Heft 222, 1978" and published by the German "Bundesministerium für Verkehr" in Bonn.

A more detailed account will now be given of the determination of the vehicle position coordinates during the movement of the vehicle along the road. The initialisation of the navigation system is done after the driver has communicated his starting position to the navigation system, for example by means of information (street name) of a first nodal point, and at the moment that he reaches that first nodal point after driving away with his vehicle. At that moment the driver initialises the navigation system for example by depressing an initialisation key. The coordinates (x_0, y_0) belonging to that first nodal point are read from the back-up store and are regarded as the initial coordinates of the route. The starting value of the directional angle ϕ_0 determined relative to a reference direction, for example west-east, is established by asking the driver in which street or on which road (road number) he intends to drive after crossing the first nodal point, or by means of a simple compass. With the initial coordinates (x_0, y_0) as the point departure, the first microprocessor now determines an address for a subsequent vector which is to be called up from the working memory and which identifies a next segment on the route to be taken by the vehicle.

The path over which the vehicle travels is calculated with the aid of the lateral acceleration determined by the accelerometer 6 and the speed measured by the speedometer 7. The analog-digital converter 5 translates the measured analog acceleration and speed values into digital values which are subsequently delivered to the second microprocessor 8. From these digital acceleration and speed values the position-locating devices now calculate the vehicle position coordinates of the moving vehicle as described in the following.

FIG. 4 illustrates the change in the speed vector and the acceleration vector with a vehicle in motion. The vehicle moves over a path 30 and at the time t_1 at the place Q it experiences a velocity \vec{v}_1 and a lateral acceleration \vec{a}_1 . The path is approximated by describing a segment of a circle of radius R relative to a centre point 0.

At the time t_2 the vehicle is situated at the place P and now experiences a velocity \vec{v}_2 and a lateral acceleration \vec{a}_2 . In the time interval $dt = t_2 - t_1$, which is infinitely

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small, the vehicle has thus travelled over a path ds along the road (circumference of the circle) and the directional angle of the vehicle has changed by $d\phi$. In $\triangle OPQ$, $P=90^\circ$, since $OP \perp \overline{PQ}$, $\triangle OPQ$ is thus a right-angled triangle.

Now $d\phi \ll 1$ rad, such that Q and Q' virtually coincide and

$$\tan d\phi \approx d\phi$$

Further,

$$ds \approx v dt$$

and

$$ds \approx PQ$$

In $\triangle OPQ$, we now have

$$\tan d\phi \approx (PQ/R)$$

Substituting (1), (2) and (3) in (4) gives

$$d\phi \approx (v dt/R)$$

or

$$R d\phi \approx v dt$$

Further the vehicle experiences the centripetal force

$$F_{cp} = (mv^2/R)$$

an Newton's third law

$$F_a = -m a$$

is valid (here m represents the mass of the vehicle). Since the vehicle is in equilibrium on the road, we can write:

$$F_{cp} = F_a \rightarrow (mv^2/R) = ma$$

$$R = v^2/a$$

Substituting (8) in (5) now gives:

$$\left\{ \begin{array}{l} R d\phi \approx v dt \\ R = \frac{v^2}{a} \end{array} \right\} \frac{v^2}{v^2} d\phi = v dt$$

$$\dot{\phi} = \frac{a}{v}$$

From the physical interpretation of the expression (9) one learns that the quotient of lateral acceleration a and velocity v gives the change in the driving direction.

With (x, y) as path coordinates of the vehicle and ϕ as the driving direction we can now draw up a next set of differential equations.

$$\left\{ \begin{array}{l} \dot{\phi} = \frac{a}{v} \\ \dot{x} = v \cos \phi \\ \dot{y} = v \sin \phi \end{array} \right.$$

Now substituting $c = \cos \phi$ and $p = \sin \phi$ then

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$$\dot{c} = -p\dot{\phi}$$

$$\dot{p} = c\dot{\phi}$$

Substituting (9) in (11) then gives:

$$\dot{c} = (-pa/v)$$

$$\dot{p} = (ca/v)$$

We now define the vehicle position vector as

$$\vec{r} = \begin{pmatrix} c \\ p \\ x \\ y \end{pmatrix}$$

Then

$$\dot{\vec{r}} = \begin{pmatrix} \dot{c} \\ \dot{p} \\ \dot{x} \\ \dot{y} \end{pmatrix} = \begin{pmatrix} \frac{-ap}{v} \\ \frac{ac}{v} \\ \frac{vc}{v} \\ \frac{vp}{v} \end{pmatrix}$$

or

$$\dot{\vec{r}} = \vec{f}(\vec{r}, t)$$

where $\vec{f}(\vec{r}, t)$ gives the vehicle path algorithm.

The set of differential equations (12) is now solved numerically and periodically with a period τ ($\tau \approx 0.1s$) by the second microprocessor 8. To that end sampling is done with that period τ and under control of the second microprocessor for the values of v and a measured by the speedometer and the accelerometer.

Discretisation in accordance with the mid-point rule then gives with a sampling period τ for the vehicle path algorithm

$$\vec{r} \left(\frac{\vec{r}_{n+1} + \vec{r}_n}{2}, (n+1)\tau \right) = \frac{\vec{r}_{n+1} - \vec{r}_n}{\tau} \quad (13)$$

where \vec{r}_{n+1} and \vec{r}_n represent two successive values of the vehicle position vector at the times $(n+1)\tau$ and $n\tau$.

Substituting (13) in (12) now gives

$$\frac{1}{\tau} \begin{pmatrix} c_{n+1} \\ p_{n+1} \\ x_{n+1} \\ y_{n+1} \end{pmatrix} - \begin{pmatrix} c_n \\ p_n \\ x_n \\ y_n \end{pmatrix} = \begin{pmatrix} -\left(\frac{a_{n+1}}{v_{n+1}}\right) \cdot \left(\frac{p_{n+1} + p_n}{2}\right) \\ \left(\frac{a_{n+1}}{v_{n+1}}\right) \cdot \left(\frac{c_{n+1} + c_n}{2}\right) \\ (v_{n+1}) \cdot \left(\frac{c_{n+1} + c_n}{2}\right) \\ (v_{n+1}) \cdot \left(\frac{p_{n+1} + p_n}{2}\right) \end{pmatrix} \quad (14)$$

This equation (14) gives a solution for the vehicle path algorithm. The values a_{n+1} and v_{n+1} give respectively the acceleration and the speed as sampled at the mo-

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ment $(n+\frac{1}{2})r$. The vehicle path algorithm thus contains a system of four equations with four unknowns (c_{n+1} , p_{n+1} , x_{n+1} , y_{n+1}). The values c_n , p_n , x_n and y_n , abbreviated to \bar{z}_n , are known from a previous solution of the algorithm. For a first solution of the algorithm, one uses for the value \bar{z}_n the initial coordinates $c_0 = \cos \phi_0$, $p_0 = \sin \phi_0$, x_0 and y_0 generated upon the initialisation of the navigation system. A solution \bar{z}_{n+1} of the vehicle path algorithm thus represents a vehicle position vector. The vehicle path algorithm is recurrently solved, since of course use is made of \bar{z}_n for calculating \bar{z}_{n+1} .

However, as a result of the presence of errors in the measured values of V_{n+1} and mainly of s_{n+1} (inaccuracies due to the measuring instruments), a deviation occurs between the calculated vehicle vector \bar{z}_{n+1} and the corresponding actual position of the vehicle. The latter is illustrated in FIG. 3 where the points D_i represent the calculated coordinate points of the vehicle position vectors. Since use is consistently made of previously calculated coordinate points of the vehicle position vector, a cumulative effect occurs as a result of which the deviations relative to the actual vehicle position becomes steadily larger. It is thus necessary to apply a correction to the calculated coordinates for the vehicle position vector. If it is now assumed that the vehicle can move only along the road, the calculated position can be regularly corrected. This is done by comparing the generated vehicle position coordinates with the coordinates of the nearest segment of the actual path as stored in the mass storage device. A first method of correcting the calculated coordinates for the vehicle position vector comprises a transposition whereby a perpendicular line from the calculated coordinate point for the vehicle position vector is projected on to the actual path position vector for the nearest segment.

A second method comprises another transposition whereby the road travelled is determined and this is fitted along a parametrised path as stored in the mass storage device.

The mathematics on which the first method is based will be described with reference to the vector diagram given in FIG. 5. In that FIG. 5 a curved segment 30 is represented by means of a number of line sections s_{i-1} , s_i , s_{i+1} which are bounded by breakpoints. To each breakpoint belongs a position vector \bar{k}_{i-1} , \bar{k}_i , \bar{k}_{i+1} . The point 0 represents the origin of the reference system.

Assume now that during the travel of the vehicle over line section s_i of the road 10 the point D is calculated on the basis of the vehicle path algorithm and the measured values for v and a . Clearly the point D does not belong to the line section s_i , so that correction is necessary. From the point D a perpendicular line is drawn to s_i which bisects s_i at the point M. The vector DM is denoted by \bar{c}_i and gives the deviation (correction vector) between the calculated coordinate point D of the vehicle position vector \bar{z}_n and the segment in which the actual vehicle position lies. The vector SD is denoted by \bar{h}_i and OD is denoted by \bar{z}_n . We can now write:

$$\bar{c}_i = \bar{k}_{i+1} - \bar{k}_i$$

$$\bar{h}_i = \bar{z}_n - \bar{k}_i$$

(20)

The line section SM is a part of the vector \bar{s}_i such that SM can be denoted by $\lambda \bar{s}_i$ where λ is a scalar and $0 \leq \lambda \leq 1$. It also applies that:

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$$\bar{c}_i = \lambda \bar{s}_i - \bar{h}_i \quad (21)$$

Since $\overline{DM} \perp \bar{s}_i$ it now holds that $\bar{c}_i \perp \bar{s}_i$ and thus that their product is

$$(\bar{c}_i \bar{s}_i) = 0 \quad (22)$$

Substituting equation (21) in (22) yields

$$\begin{aligned} (\bar{c}_i \bar{s}_i) &= (\lambda \bar{s}_i - \bar{h}_i \bar{s}_i) \\ 0 &= \lambda (\bar{s}_i \bar{s}_i) - (\bar{h}_i \bar{s}_i) \\ \lambda &= \frac{(\bar{h}_i \bar{s}_i)}{(\bar{s}_i \bar{s}_i)} \end{aligned} \quad (23)$$

The value of λ can now be calculated by substituting the x and y values of the vectors \bar{z}_n , \bar{k}_i and \bar{k}_{i+1} in equation (24) and calculating their products. Substituting equation (20) in (21) yields:

$$\bar{c}_i = \lambda \bar{s}_i - \bar{h}_i \quad (25)$$

From equation (25) and by substituting the calculated value of λ , one can now determine \bar{c}_i and $|\bar{c}_i|$.

The correction of the calculated coordinates of the vehicle position vector with the aid of the actual road position coordinates from the digitised road network can be implemented in various ways. A first preferred embodiment will be described with reference to the flow chart shown in FIGS. 6a to 6c. The flow chart shown in FIG. 6a is that of a main program which is executed under control of the first microprocessor (1 in FIG. 2) of the vehicle navigation system. The flow chart shown in FIG. 6b is that of the subroutine "determination of segment" which is likewise executed by the first microprocessor. The flow charts shown in FIGS. 6c and 6d are those of the subroutines "determination of \bar{c}_i , λ " and "determination of \bar{c}_i breakpoints", respectively, which are preferably executed under control of the second microprocessor. The flow chart shown in FIG. 6e is that of the "correction subroutine", which is also preferably executed by the second microprocessor. The control unit 1, the working memory 2, the mass storage device 3 and the position-locating means 12 thus operate as a correction unit.

The main program for the operations of the correction unit (FIG. 6a) is executed at least once per segment and for segments are longer than, say (> 700 m), the main program is periodically repeated for example every 10 to 20 seconds, depending on the accuracy of the position-locating devices.

After starting of the main program (140) a first correction signal is generated (141) for handling the subroutine "determination of segment". The handling of the subroutine "determination of segment" also implies the handling of the subroutines "determination of \bar{c}_i , λ " and "determination of \bar{c}_i breakpoints" (142). With the result from the preceding subroutines a "correction subroutine" (143) is then completed. This correction subroutine may possibly be supplemented with the subroutine "change of driving direction" (144). Terminating the subroutine "change of driving direction" also signifies the termination (145) of the main program.

The subroutine "determination of segment" (FIG. 6b) is started (50) as a part of the main program. This subroutine begins with an investigation (51) of whether the vehicle is still located in the same segment. This investi-

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gation is done for example by checking on the basis of the route description the results of a previous execution of the subroutine "determination of segment" and the speed of the vehicle, for the segment that was driven into in the said previous execution. Further, a check is also made here on whether the vehicle is still situated near a nodal point (in a radius of ± 300 m around the nodal point), in which case an indicator is set.

If the vehicle is still in the same segment (Y) then a move is immediately made to step 57 where a jump operation is performed to the subroutine "determination of \vec{e}, λ ". If, on the contrary, the vehicle is no longer in the same segment (N), or if an indicator has been set, then a selection is made (52) of a group of segments situated within a given radius (for example 350 m) around the calculated vehicle position as represented by the generated vehicle position coordinates. This selection is made by using the data block belonging to the last-determined segment and taking account of the direction in which the vehicle is moving, by selecting the data blocks of the adjoining segments. The number (γ) of segments from the said group is then counted (53) and a first counter with that value (γ) is initialised (54). Next, a first segment is selected from the said adjoining segments (55) and the first counter is reduced by one position ($\gamma := \gamma - 1$) (56). Then a jump operation is made to the subroutine "determination of \vec{e}, λ ". After execution of the subroutine "determination of \vec{e}, λ " the value determined for the correction vector (\vec{e}) is stored with the associated segment number in a first table (58). Next a jump is made (59) to the subroutine "determination of \vec{e} breakpoints". Then a check is made (60) of whether the first counter has reached zero ($\gamma = 0$), other words to determine whether the subroutine "determination of \vec{e}, λ " and the subroutine "determination of \vec{e} breakpoints" have been executed for each of the said segments of that group.

If the first counter has returned to zero (Y) then the smallest e value $\vec{e}^{(k)}$ is selected (62) from the \vec{e} values stored in the first table. This smallest \vec{e} value $\vec{e}^{(k)}$ with its associated segment number is stored in a first register. This terminates the segment determination subroutine (63). If the first counter has not returned to zero (N), then a subsequent segment from the said group of segments is selected (61) and the subroutine "determination of segment" is repeated starting from step 56.

The execution of the subroutines 57 and 59 for all the segments of the group is important for determining which way the vehicle is going to travel after the nodal point has been passed, and in so doing also to determine the relevant segment with respect to which correction operations are to be carried out. In a situation as depicted in FIG. 7a, the vehicle that is situated at nodal point 83 may take either road 80 or road 81. In a transposition formed by the perpendicular projection of the calculated point D onto the line sections \vec{s}_a or \vec{s}_b belonging to road 80, the perpendicular line from D bisects the line sections \vec{s}_a or \vec{s}_b in their extension. This has the consequence that the value for λ upon projection onto \vec{s}_a or \vec{s}_b , respectively, is larger than one or smaller than 0, respectively, i.e. $\lambda \notin [0, 1]$ and the transposition is consequently invalid. The segment of road 80 is thus evidently not the road along which the vehicle is moving. The choice of another road and thus of another segment is necessary. The other segment is for example that belonging to road 81 which lies in the vicinity of road 80 and moreover has a nodal point 83 in common with

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road 80. The perpendicular projection of D on to \vec{s}_a will now yield a valid value for λ that lies between 0 and 1.

The flow chart depicted in FIG. 6c illustrates the different steps of the subroutine "determination of \vec{e}, λ ".

With this subroutine a transposition is determined of the calculated vehicle position coordinate to a line section of a segment belonging to the said group and also a value for the correction vector \vec{e} .

The subroutine "determination of \vec{e}, λ " is started (120) as a part of the subroutine "determination of segment" (step 57). The subroutine "determination of \vec{e}, λ " begins (121) by calling up the most recent vehicle position coordinates for the position vector \vec{z}_N as calculated by means of the vehicle path algorithm. The vehicle position coordinates are calculated under control of the position-locating devices and are for example temporarily stored in the internal memory. After the calculated vehicle position coordinates for \vec{z}_N have been called up (122) and a second counter started ($i = 1$) which counts the number of line sections contained in the segment, the coordinates of the first (s_1) line section belonging to that segment are determined. With the value for \vec{z}_N and the value for s_1 , a determination (123) is now made (as given by the expressions (20) and (23)) of the value of λ and this is stored in a section table.

Next, a check is made (124) with the λ key whether $0 \leq \lambda \leq 1$. If λ indeed has a valid value between the number 0 and the number 1 (Y), then the vector \vec{e}_1 for the line section s_1 is determined (125) (as given by expression (25)) and also its length $|\vec{e}_1|$ being the distance between the calculated coordinate point \vec{z}_N and the transposed coordinate point of \vec{z}_N . Two alternatives are now possible for the subroutine "determination of \vec{e}, λ ".

In a first alternative a check is made (126) whether $|\vec{e}_1|$ is smaller than a given distance L. For this purpose for example $L = \text{maximum}$ is placed at step 122.

If $|\vec{e}_1|$ is smaller than L (Y), as it will be when $L = \text{maximum}$, then the value of $|\vec{e}_1|$ is substituted for L (127). By substituting in this way a smaller value $|\vec{e}_1|$ for the value of L whenever $|\vec{e}_1| < L$, the smallest value of $|\vec{e}_1|$ is ultimately selected for this connection vector.

In a second alternative the steps 126 and 127 are not executed but at step 125 the calculated value for $|\vec{e}_1|$ is directly stored in the first table and a jump is then immediately made to step 128. Depending on the desired execution, either one of both alternatives can be selected.

At step 128 the second counter is now raised by one position ($i := i + 1$) in order to examine a subsequent section from the segment. Next a check is made (129) to determine whether all sections of the relevant segment have already been examined ($i < m$). This is done by comparing the position of the second counter with the number of sections of the relevant segment. If all sections have not been taken into account (N), then the subroutine is repeated from step 123 for a subsequent section (s_{i+1}).

If on the other hand all sections of the relevant segment have been taken into account (Y), then the subroutine "determination of \vec{e}, λ " is ended for the relevant segment and a jump is again made to the subroutine "determination of segment" (130) in order to store the calculated \vec{e} values in the first table (58) if the first alternative was chosen.

The subroutine "determination of \vec{e}, λ " gives a first possibility of determining one or more values of the correction vector \vec{e} by making use of the λ key. Now it may follow from the λ key for the various sections that

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either several values of λ satisfy and thus several \bar{e} values are determined, or no single value of λ satisfies and thus no valid \bar{e} values are determined. A situation where several values are determined for \bar{e} is for example presented in FIG. 7b.

It is assumed that point D represents the coordinate position of the calculated vehicle position vector \bar{Z}_N . With perpendicular projection of D onto s_d the perpendicular line from D bisects s_d and M_1 , and with perpendicular projection of D onto s_f the perpendicular line from D bisects s_f at M_2 . Since now the transposed point M_1 is a point that belongs to section s_d and the transposed point M_2 is a point that belongs to section s_f , then $AM_1 = \lambda_1 \bar{e}_d$, $KM_2 = \lambda_2 \bar{e}_f$ and both $0 \leq \lambda_1 \leq 1$ and $0 \leq \lambda_2 \leq 1$.

With step 124 of the subroutine "determination of \bar{e} , λ " it is thus established that both λ_1 and λ_2 satisfy the imposed criterion (λ -key) and in this way both $\bar{e}_1 = DM_1$ and $\bar{e}_2 = DM_2$ are determined. In the first table there are in this case two values for \bar{e} .

A situation where no single value for \bar{e} is determined in the handling of the subroutine "determination of \bar{e} , λ " is shown for example in FIG. 7c. Assume again that the point D represents the coordinate position of the calculated vehicle position vector \bar{Z}_N . With perpendicular projection of D onto s_g the perpendicular line from D bisects the on extension of section s_g at the point M_3 . Likewise the perpendicular line from D onto s_h bisects s_h in its extension at the point M_5 . Now $AM_3 = \lambda_3 \bar{e}_g$, $KM_4 = \lambda_4 \bar{e}_h$ where $\lambda_3 > 1$ and $\lambda_4 < 0$.

Since now neither of the two values λ_3 , λ_4 satisfy the criterion ($0 \leq \lambda \leq 1$) imposed in the investigation of step 124, no values are determined for \bar{e} .

FIG. 6d shows the flow chart of the subroutine "determination of \bar{e} , breakpoints". This subroutine is started (131) during step 59 of the subroutine "determination of segment". The subroutine "determination of \bar{e} , breakpoints" is in fact supplementary to the subroutine "determination of \bar{e} , λ " and is thus a preferred embodiment of the functioning of a vehicle navigation system in accordance with the invention.

The subroutine "determination of \bar{e} , breakpoints" begins (132) with the counting of the number (β) of breakpoints in the relevant segment. The subroutine "determination of \bar{e} , λ " and the subroutine "determination of \bar{e} , breakpoints" are always completed successively for the same segment as also appears from the flow chart of the subroutine "determination of segment" which is shown in FIG. 6a.

A third counter is next (133) positioned in a position β which gives the number of breakpoints just counted. The position of the third counter is then (134) investigated. If this position is zero (Y) (all breakpoints dealt with, or there is no single breakpoint in that segment because it is a straight road), then this subroutine is ended and a jump is again made to the subroutine "determination of segment" (139). If, however, the position of the third counter has a value different from zero (N), then (135) the coordinates of the breakpoint K_β indicated by the position of the third counter are called up in order thereafter to determine (136) the distance $d\beta(D, K_\beta)$ between the point D and the breakpoint K_β (see FIGS. 7b and 7c). This distance $d\beta(D, K_\beta) = e_\beta$ yields a supplementary value for \bar{e} , namely $e_\beta = \bar{Z}_N - K_\beta$, which is then stored (137) in the first table together with the segment number. Then the third counter is reduced (138) by one unit and the subroutine

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"determination of \bar{e} , breakpoints" is repeated from step 134.

By making use of the subroutines "determination of \bar{e} , λ " and "determination of \bar{e} , breakpoints" a series of values for the correction vector \bar{e} is stored in the first table. At step 62 of the subroutine "determination of segment" the smallest value $\bar{e}^{(k)}$ for \bar{e} is then selected from this series. The segment number that belongs to the smallest value of \bar{e} is then used to identify the segment in which the vehicle is situated at a given moment.

The value $\bar{e}^{(k)}$ is further used in the handling of the correct subroutine depicted in FIG. 6e. The correction subroutine is started (70) on command from the first data processing unit in the execution of the main program (step 143, FIG. 6a). In this correction subroutine it is checked (71) whether that smallest value $\bar{e}^{(k)}$ is smaller than a norm value, for example $\bar{e}_{norm} = 20$ m ($\bar{e}^{(k)} < \bar{e}_{norm}$). If that smallest value $\bar{e}^{(k)}$ is smaller (Y) than the norm value \bar{e}_{norm} , then a correction of the calculated vehicle position is superfluous and the correction subroutine is thereby terminated. If, on the other hand, the smallest value $\bar{e}^{(k)}$ is greater than \bar{e}_{norm} (N), then this means that the deviation is too great and that a correction must be made. The correction is now done (72) by vectorially adding $\bar{Z}_N^{(M)} = \bar{Z}_N + \bar{e}^{(k)}$, in other words that smallest value of $\bar{e}^{(k)}$, to the calculated vehicle position vector \bar{Z}_N . The corrected value $\bar{Z}_N^{(M)}$ can now be used in as the reference position for calculating the next vehicle position coordinates by means of the vehicle path algorithm. After determination of that corrected value $\bar{Z}_N^{(M)}$ a step is made back again to the main program.

Yet another method for correcting the calculated vehicle position coordinates for the vehicle position vector is the "matching method" which entails calculating the travelled path and matching it along the actual path. This other method is illustrated with reference to the example in FIG. 8. The vehicle moves along the part of the road 91 which is parametrised by the set of sections s_a , s_b , s_c and s_d and by the breakpoints K_1 , K_2 and K_3 .

Assume that the breakpoint K_1 represents the position defined by the road position coordinates that were obtained in a previous correction procedure (or are the coordinates for the initial road position). After the vehicle has driven a further time Δt after the execution of the previous correction procedure, it has travelled from the reference point K_1 a calculated distance $l = v \Delta t$ (v being the average speed of the vehicle in the time Δt) and on the basis of the vehicle path algorithm the coordinates of the point D are determined. Since the vehicle can only move over the road 91, it must hold that

$$l = \lambda_1 |\bar{s}_b| + \lambda_2 |\bar{s}_c| + \lambda_3 |\bar{s}_d| \quad (30)$$

$$0 \leq \lambda_i \leq 1 \quad i \in \{1, 2, 3\} \quad (31)$$

Although this equation (30) contains three unknowns, namely λ_1 , λ_2 and λ_3 , it can nevertheless be solved if account is taken of the boundary conditions given in (31) as also below:

$$\text{when } l > |\bar{s}_b| \text{ then } \lambda_1 \text{ must be equal to } 1 \quad (32)$$

$$\text{when } l > |\bar{s}_b| + |\bar{s}_c| \text{ then } \lambda_1 \text{ must be equal to } 1 \text{ and } \lambda_2 \text{ must be equal to } 1 \quad (33)$$

These two boundary conditions are based on the fact that K_1 gives the starting point from which l has to be measured along the road 91 and on the fact that the vehicle can move only along the road. The example

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given in FIG. 3 shows that $1 > |\vec{s}_0|$, but $1 < |\vec{s}_0| + |\vec{s}_c|$, so that $1 = |\vec{s}_0| + \lambda_2 |\vec{s}_c|$.

The transposed coordinates of the vehicle position vector are thus for the position $\vec{K}_2 + \lambda_2 \vec{K}_3$.

Also determined is the distance $|\vec{e}|$ between the point D and this transposed position.

$$\vec{e} = (\vec{K}_2 + \lambda_2 \vec{K}_3) - \vec{Z}$$

$$|\vec{e}| = |\vec{K}_2 + \lambda_2 \vec{K}_3 - \vec{Z}| \quad (34)$$

The determination of the value 1, the scalars λ_i , the vectors $\vec{K}_2 + \lambda_2 \vec{K}_3$, \vec{e} and $|\vec{e}|$ is done by means of the first and/or the second microprocessor. When this matching method is used it is of course also possible, as described for the use of perpendicular projection, to transpose the calculated road travelled 1 to more than one nearby segment and then to select from these the smallest value of the correction vector.

A supplementary method of correcting the calculated vehicle position coordinates is for example given by the subroutine "change of driving direction" for which the flow chart is shown in FIG. 9. The subroutine "change of driving direction" is used in addition to the correction subroutine (FIG. 6e) or to the above-described "matching method". The subroutine "change of driving direction" is, however, not of essential importance for the functioning of a navigation system in accordance with the invention, so that in a simple implementation of a navigation system in accordance with the invention it might possibly be omitted.

The subroutine "change of driving direction" is started (184) as a part of the main program (step 144) and is handled preferably under the control of the section microprocessor. The first step (85) that is completed in this subroutine contains the calling up of the momentary value of the direction angle ϕ as calculated from the vehicle path algorithm. This value of the direction angle is temporarily stored in a register. Next to be detected (86) is whether in accordance with the represented path the momentary value of the direction angle has changed appreciably with respect to the preceding value of the direction angle which is also stored in that register. An appreciable change of the value of the direction angle can in certain circumstances imply that the vehicle has driven over a nodal point or a break point and has proceeded in a different direction. If the value of the direction angle is not (N) appreciably changed, then a shift is made to step 89 and with this the subroutine "change in driving direction" is ended. If on the contrary the value of the direction angle has (Y) appreciably changed, then (90) a second correction signal is generated by the second microprocessor and under the control thereof current driving routine coordinates are called up from the working store. These driving route coordinates contain data on the road network in a radius (approx. 100 m) around the last calculated vehicle position. With the aid of these driving route coordinates a check is now made (87) to determine whether the vehicle is situated at a nodal point or a breakpoint. If the vehicle is indeed (Y) situated at a nodal point or breakpoint, then a third correction signal is generated (88) and under control thereof coordinates of that nodal point or breakpoint are substituted (88) for the calculated coordinates of the vehicle position vector. If however, the vehicle is not situated at a nodal point or breakpoint (87, N) then after step 87 a jump is directly made to step 89. It would also be possible after step 87 and in the event that the vehicle is not situated at a nodal point to investigate whether the vehicle has

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made an about turn. This latter information could then be processed or used for correction purposes.

The correction vector \vec{e} and its length $|\vec{e}|$ indicating the deviation between the calculated position coordinates and the transposed coordinates and which has been determined by one of the methods described in the foregoing can also be used for applying a correction to the measured value of the lateral acceleration a , as determined by the accelerometer.

As already mentioned, simple accelerometers yield an insufficiently accurate measuring result, so that a correction has to be made to the result. Another factor that influences the accuracy of the result of a measurement with a simple accelerometer in a vehicle is the tilting of the vehicle around an equilibrium position, for example as a consequence of a passenger stepping in or when the vehicle drives into a corner at high speed. FIG. 10a shows a vehicle in equilibrium and FIG. 10b shows a vehicle that has tilted by an angle ψ , called the tilting angle, around the equilibrium position (g represents the acceleration due to gravity). As a consequence of that tilting angle and acceleration error of the magnitude $g \sin \psi$ will be measured. A correction must be made for this.

The conversion of the analog measured speed and acceleration values into digital values, the calculation of the path algorithm, in short the entire vehicle navigation system, makes use of electronic components. The operation of electronic components is influenced by the considerable temperature fluctuations and differences to which a vehicle is subjected (ranging from nearly -40°C . to $+70^\circ \text{C}$.). For this, too, correction is necessary.

The determination of a correction value Δa applicable to the measured lateral acceleration will be described with reference to FIGS. 11a and 11b. FIG. 11a gives an example of a hardware implementation of a part of the correction unit, which part generates the correction value Δa . The correction unit contains an operator generator 200 which has inputs for receiving the measured speed (v) and acceleration (a) as well as the calculated vehicle position vector (\vec{r}_N). This operator generates from the received quantities an acceleration operator \vec{g}_a in a manner which will be elucidated in the further description. The acceleration operator is applied to an input of an operation unit 201, in which further the correction vector $\vec{e}^{(k)}$ and a fourth correction signal (4C) generated by the first microprocessor are applied. The operation unit 201 under control of the fourth correction signal causes the acceleration operator to act on the applied correction vector and generates therefrom a correction value Δa .

The generation of the acceleration operation \vec{g}_a and the correction value Δa will now be further elucidated with reference to the flow chart of the a -correction program depicted in FIG. 11b.

The a -correction program starts (100) as shown as the vehicle navigation system is initialised. The a -correction program begins (101) by setting a fourth counter to zero ($k=0$) as well as by storing an initial value for the correction value Δa_k (for example $\Delta a_0=0$) in a second register. Thereafter (102) a fifth counter is set to zero ($n=0$) and the initial value of the direction angle ($\phi=\phi_0$) is stored in third register. Next (103) the speedometer and the accelerometer are sampled in order to call up the value v_{n+1} and a_{n+1} (see equation 14) and store these values in a fourth register of the operator

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generator. To the measured value of the acceleration the position-locating means now apply a correction (104), namely $a_{n+1} - \Delta a_k$. With this corrected value for the acceleration the vehicle position vector \bar{z}_{n+1} is now calculated (105) by making use of the vehicle path algorithm (equation 14). The result of the calculation of \bar{z}_{n+1} is stored for example in an internal memory of the second microprocessor unit. After calculation of the vehicle position vector \bar{z}_{n+1} an acceleration operator \bar{g}_n is now determined, which acceleration operator \bar{g}_n indicates the sensitivity of the vehicle position vector to errors in the acceleration signal. For \bar{g}_n it holds that:

$$\bar{g}_n \Delta a_k = \epsilon_n$$

or $(\bar{g}_n)^{-1} \epsilon_n = \Delta a_k$

where $(\bar{g}_n)^{-1}$ represents the inverse of the acceleration operator and ϵ_n is the correction vector (see equation 21). Thus

$$\bar{z}_N = \bar{z}_N^{(M)}$$

where $\bar{z}_N^{(M)}$ represents the converted vehicle position vector as determined at step 72 of the correction subroutine in FIG. 6e. Proceeding from the initial value of the vehicle position vector \bar{z}_0 the vehicle position vector \bar{z}_1 can be determined with the help of the vehicle path algorithm and the values v_1, a_1 from the equation:

$$\bar{z}_1 = \bar{f}(\bar{z}_0, v_1, a_1)$$

where \bar{f} represents the vehicle path algorithm. One now has

$$a_1 = a_1 + \Delta a_0$$

where a_1 represents the real value of the acceleration. Substituting (43) in (42) now yields

$$\bar{z}_1 = \bar{f}(\bar{z}_0, v_1, a_1 + \Delta a_0)$$

If now Δa_0 is very much less than the nominal value of the lateral acceleration, for example r.m.s. a , then a first order Taylor series approximation can be written for formula (44).

$$\bar{z}_1 = \bar{f}(\bar{z}_0, v_1, a_1) + \left. \frac{\partial \bar{f}}{\partial a} \right|_0 \cdot \Delta a_0$$

$$\text{where } \left. \frac{\partial \bar{f}}{\partial a} \right|_0$$

is the derivative of \bar{f} to a' for $n=0$. If the speedometer is sufficiently reliable, when v_1 is a reliable value and

$$\bar{f}(\bar{z}_0, v_1, a_1) = \bar{z}_1^{(M)}$$

We now define:

$$\bar{g}_0 = \left. \frac{\partial \bar{f}}{\partial a} \right|_0$$

Substituting (46) and (47) in (43) gives

$$\bar{z}_1 = \bar{z}_1^{(M)} + \bar{g}_0 \Delta a_0$$

Making use of the vehicle path algorithm and of the calculated vehicle position vector \bar{z}_1 , the vehicle posi-

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tion vector \bar{z}_2 is determined in a subsequent treatment of step 105.

$$\bar{z}_2 = \bar{f}(\bar{z}_1, v_1, a_1) \quad (49)$$

Equation 49 can also be written as

$$\bar{z}_2 = \bar{f}(\bar{z}_1^{(M)} + (\bar{z}_1 - \bar{z}_1^{(M)}), v_1, a_1 + \Delta a_0) \quad (50)$$

Development of this in a Taylor series then gives:

$$\bar{z}_2 = \bar{f}(\bar{z}_1^{(M)}, v_1, a_1) + \left[\left. \frac{\partial \bar{f}}{\partial \bar{z}_1} \right|_1 (\bar{z}_1 - \bar{z}_1^{(M)}) + \left. \frac{\partial \bar{f}}{\partial a} \right|_1 \Delta a_0 \right] \quad (51)$$

Substituting (48) in (51) and re-arranging (51) then gives

$$\bar{z}_2 = \bar{z}_2^{(M)} + \left[\left. \frac{\partial \bar{f}}{\partial \bar{z}_1} \right|_1 \bar{g}_0 + \left. \frac{\partial \bar{f}}{\partial a} \right|_1 \right] \Delta a_0 \quad (52)$$

We now defined

$$\bar{g}_1 = \left. \frac{\partial \bar{f}}{\partial \bar{z}_1} \right|_1 \bar{g}_0 + \left. \frac{\partial \bar{f}}{\partial a} \right|_1 \quad (53)$$

Then

$$\bar{z}_2 = \bar{z}_2^{(M)} + \bar{g}_1 \Delta a_0 \quad (54)$$

In general it can thus be derived that the acceleration operation \bar{g}_n is given by

$$\bar{g}_n = \left. \frac{\partial \bar{f}}{\partial \bar{z}_n} \right|_n \bar{g}_{n-1} + \left. \frac{\partial \bar{f}}{\partial a} \right|_n \quad (55)$$

Equation (55) thus gives a general expression for the determination of \bar{g}_n .

Returning to the a correction program (FIG. 11b) the value for \bar{g}_n is then determined in step 106 using equation (55). Next, a check is made (107) to determine whether a new value for the correction vector $\bar{e}_k^{(k1)}$ is already known (the value $\bar{e}_k^{(k1)}$ is determined as described in the foregoing). If no value is yet known for $\bar{e}_k^{(N)}$ then the fifth counter is increased by one position (108) and the program is repeated from step 103. If on the contrary a new value is known for $\bar{e}_k^{(k1)}$ (Y) then this is retrieved from the first register (109) together with the real coordinates of the vehicle position vector $\bar{z}_1^{(M)}$. Next (110), using the operation unit, a value for $\Delta \bar{a}_k$ is determined from

$$\bar{z}_n = \bar{z}_n^{(M)} + \bar{g}_n \Delta \bar{a}_k \quad (60)$$

This new value for $\Delta \bar{a}_k$ is now stored in the second register (111) where it replaces the present value $\Delta \bar{a}_{k-1}$. The fourth counter too is increased by one position. With this new value for $\Delta \bar{a}_k$ and with the fourth counter in a subsequent position the a-correction program is repeated from step 102. At this step 102 the value $\phi_N^{(M)}$ is determined from $z_N^{(M)}$ for the direction angle and stored in the third register.

By the application of a correction value $\Delta \bar{a}_k$ to the measured acceleration value, constant and slowly

changing errors in the measured lateral acceleration are eliminated. These measures thus offer the possibility of using a simple and thus relatively cheap accelerometer in the vehicle navigation system in accordance with the invention. The correction of the measured lateral acceleration has positive consequences for calculating the vehicle position vector \vec{z}_{n+1} with the position-locating devices. When now instead of the measured value the Δa_x corrected value is filled into the vehicle path algorithm $f(\vec{z}_n, v_{n+1}, a_{n+1})$ for a_{n+1} , then the error in the calculated position coordinates decreases considerably. This latter is shown in an example given in FIG. 12. In that example the vehicle moves along a straight path which coincides with the x axis of the reference system. The vehicle has a speed of 20 m/s and the correction value Δa_0 is chosen as $\Delta a_0 = 0.5 \text{ m/s}^2$ and the main program was executed every 30 seconds. The vehicle departs from the origin. In a first determination of the correction vector $\vec{c}_k^{(k)}$ this has a length of 221.5 m. After application of the correction factor determined with the a correction program the deviation vector $|\vec{e}_2|$ after a second determination is 33 m, and subsequently after a third and fourth determination the deviation vector is $|\vec{e}_3| = 6.7 \text{ m}$ and $|\vec{e}_4| = 1.5 \text{ m}$ respectively.

By making use of a vehicle navigation system in accordance with the invention the vehicle position coordinates can thus be determined with relatively high accuracy.

When now the vehicle is stopped, then in fact the last-determined coordinates are the coordinates of the starting point of the next journey made by the vehicle. Since these last-determined coordinates are now accurately known, they can readily be used as the starting position for the next journey. To this end the central unit is provided with a non-volatile memory, for example incorporated in the position-locating means, in which non-volatile memory these last-determined vehicle position coordinates are stored. The non-volatile memory is for example powered by the storage battery of the vehicle and is charged under control of a charging pulse generated upon stopping the vehicle, for example from the switching-off of the ignition.

Using a correction value Δa_x on the measured value for the acceleration, as well as the determination of a correction vector \vec{e} are means which serve to determine the vehicle position coordinates more accurately. An alternative way of determining the vehicle position coordinates is to use a radio or satellite navigation system. A known, already operative, radio navigation system is LORAN-C which is capable of determining a position to an accuracy of approximately 100 m. An example of a known satellite navigation system is the GPS (Global Positioning System—code name NANSTAR) which will be capable of determining a position to an accuracy of approximately 5 m. Further data on the systems LORAN-C and GPS, respectively, are stated, for example, in the articles "Current developments in LORAN-C" by R. L. Frank, Proceedings of IEEE, Vol. 71, No. 10 October 1983, pp. 1127-1139 and "Civil GPS from a future Perspective" by T. A. Stansell, Proceedings of IEEE, Vol. 71, No. 10, October 1983, pp. 1187-1192, respectively.

The determination of a position to an accuracy of approx. 100 m is insufficient for use in a vehicle navigation system, so that the LORAN-C system is not to be considered for this purpose. An accuracy of 5 m on the contrary is useful indeed so that satellite navigation with GPS is to be considered for vehicle navigation.

However, the determination of vehicle position coordinates only by means of GPS satellite navigation is insufficient because the signals originating from the satellites are not received continuously and free from distortion. A poor signal reception may arise, for example, from reflection of the radiation by obstacles, for example, high buildings, or by electromagnetic sheet noise. Notably the built-up area where great accuracy of the vehicle position coordinates is required, this type of interferences is particularly annoying.

The combination of a satellite navigation system with the dead reckoning data processing system described hereinbefore provides a solution to mitigation of the disadvantages of the two systems individually. As a matter of fact, because the errors in a dead reckoning data processing system are not correlated with those in a satellite navigation system, both systems may be considered to be complementary.

FIG. 13 shows an embodiment of a vehicle navigation system in which a dead reckoning data processing system and a satellite navigation system are combined. The vehicle navigation system comprises analogue elements such as that shown in FIG. 2 (corresponding elements are referred to by the same numerals), as well as a receiver 300 for receiving satellite signals. The receiver 300 is connected to the communication line 4 so that the signals received from the satellite are transmitted to the mass memory and the control unit. Receiving and processing GPS satellite signals is described, for example, in the article by R. J. Nilikien and C. J. Zoller "Principles of operation of NANSTAR and system characteristics". The Institute of Navigation, Global Positioning System, Special Issue, 1980.

The vehicle position coordinates as determined by the dead reckoning data processing system and corrected in the manner described hereinbefore are combined under the control of the control unit 1, with the position coordinates as received by receiver 300 in a mixing unit 301 which forms part of the central unit. The mixing unit mixes the position coordinates in such a manner that an optimum position of the vehicle is obtained. For this purpose the mixing unit comprises a Kalman filter. In the article "Sensitivity Analysis of an integrated NANSTAR GPS/INS Navigation System to component failure" by H. M. Schwartz, published in Journal of the Institute of Navigation, Vol. 30, No. 4, winter 1983-84, pp. 325-337, two examples are given of how position coordinates originating from various sources are mixed by means of a Kalman filter so as to generate one system of position coordinates the accuracy of which is substantially greater than that of the individually presented position coordinates.

In signal processing by means of a Kalman filter for determining the system of combined position coordinates, use is made of the errors associated with each system of presented position coordinates. In fact, each system of presented position coordinates has an error value expressed in a contour of equal probability of position. In the vehicle position coordinates as determined by the dead reckoning data processing system, the value of the correction vector $\vec{c}^{(k)}$ and/or the correction value a are used in the error value. The error values for the satellite navigation system are mentioned in the above article by H. M. Schwartz.

The combination of the dead reckoning data processing system and a satellite navigation system hence presents the possibility of determining the vehicle position

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coordinates with greater accuracy and thus realizing a more reliable vehicle navigation system.

What is claimed is:

1. A navigation system for a road vehicle comprising: a measuring unit including a speedometer and an accelerometer for measuring lateral acceleration of the vehicle, a communication unit connected to a central unit for the input of a starting position and a destination and for displaying on a display means a driving route between the starting position and destination, said central unit comprising a mass storage device for storing geographic data of a road network, a control unit and position-locating means and all connected to a common communication line, said central unit including a route-determining unit for determining a driving route between said starting point and the destination by use of the geographic data in the mass storage device, said position-locating means having a first input connected to an output of the measuring unit for receiving measurement data so as to determine from the measurement data, after receiving the starting position, successive vehicle position coordinates and the driving direction of a moving vehicle, and wherein the position-locating means generate recurrently from received measured lateral acceleration and speed of the vehicle successive vehicle position coordinates and driving direction of the moving vehicle.

2. A navigation system as claimed in claim 1 further comprising a correction unit connected to the communication line for determining correction vectors that indicate a deviation between the vehicle position coordinates generated by the position-locating means and stored road position coordinates for a corresponding position on a part of the road, and for correcting the generated vehicle-position coordinates therewith, the geographic data of the road network including a set of segments where each segment represents a part of the road between two nodal points and identified at least by the coordinates of said two nodal points, said correction unit including transposition means for determining, under control of a first correction signal generated by the control unit, for each segment from a group of segments situated within a given radius around a generated vehicle position coordinates, a transposition of the generated vehicle position coordinates for a transposed vehicle position situated near the relevant segment, said transposition means generating correction vectors that give distances between the generated vehicle position and its transposed positions, and said correction unit further comprises means for selecting from the generated correction vectors that vector which has the smallest distance, a correction being made on the basis of the selected correction vector.

3. A navigation system as claimed in claim 2, wherein segments for parts of a road network which run along a straight line form a first subset of the set of segments, and wherein the straight part of a road is represented by one line section, the transposition means determining, for each segment of the first subset, the perpendicular projection of the generated vehicle position coordinates onto the line section of the relevant segment, and means for validating the transposition when the transposed position is a point of that line section.

4. A navigation system as claimed in claim 3, wherein segments for parts of a road network which follow a curved line form a second subset of the set of segments and with the curved part of a road represented by a number of line sections, the transposition means deter-

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mining, for each segment of the second subset, the perpendicular projection of the generated vehicle position coordinates onto at least one line section of said number of line sections, and means for validating the transposition when the transposed position is a point of one of the line sections.

5. A navigation system as claimed in claim 4, wherein a point of intersection of two successive line sections forms a breakpoint and the transposition means perform a transposition by determining the distance between the generated vehicle position coordinates and at least one breakpoint.

6. A navigation system as claimed in claim 2, wherein for each segment the axis of the appertaining part of the road is parametrised by means of at least one section, and the transposition means perform a transposition by determining the path distance travelled between a reference point of the relevant segment and the generated vehicle position coordinate and subsequently transposing said distance on the sections of the relevant segment with said reference point as the point of departure.

7. A road vehicle navigation device comprising:

(a) a measuring unit comprising an accelerometer for measuring lateral acceleration of the vehicle and a speedometer, and a first output for supplying measured lateral acceleration signal values and speed signal values;

(b) a communication unit which includes input means for inputting a starting position and a destination and display means for displaying at least parts of a driving route between said starting position and said destination; and

(c) a central unit comprising a mass storage device, a control unit, position-locating means and a route-determining unit and all connected to a communication line, said position-locating means being connected to said communication unit for receiving said starting position and to said first output of said measuring unit, said position-locating means being enabled upon reception of said starting position for generating, recurrently, based on said measured speed signal values and lateral acceleration signal values, successive vehicle position coordinates and the driving direction of the moving vehicle, said route-determining unit being connected to said communication unit for determining, under control of said control unit, driving route data between said starting position and said destination by using geographic data of a road network stored in said mass storage device, and means for supplying said driving route data to said display means.

8. A navigation device as claimed in claim 7, wherein said geographic data of the road network includes a set of segments in which each segment represents a road-part of said road network, wherein each of said segments is bounded by two nodal points and contains at least the coordinates of the two nodal points, and said navigation device further comprises a correction unit for generating first correction signals, and connected to said communication line, said correction unit comprising transportation means for determining, under control of a received first correction signal, a number of transposed vehicle position coordinates by applying a transposition of a received vehicle position coordinate, generated by said position-locating means, to path coordinates of a group of segments formed by a number of segments of said set of segments and which are situated within a given radius around said received vehicle posi-

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tion coordinates, said transposition means further generating a number of correction values by determining, for each determined transposed coordinate of said number of transposed coordinates, the distance between said determined transposed coordinate and said vehicle position coordinate, said correction unit further comprising selection means for selecting from said number of correction values the one which has the smallest distance, and said correction unit comprises a correction module for determining a correction vehicle position coordinate by correcting said vehicle position coordinate with the selected correction value.

9. A navigation device as claimed in claim 8, wherein said set of segments comprises a first subset formed by segments which represent a roadpart formed by a substantially straight line and the substantially straight road part is represented by one line section, said transposition means determining said number of transposed coordinates by determining, for each segment of said group of said first subset, the perpendicular projection of said vehicle position coordinate on said line section of the considered segment, and said correction unit comprises means for checking whether said transposed coordinate is a point of that line section and for validating said transposed coordinate if it is a point of that line section.

10. A navigation device as claimed in claim 8, wherein said set of segments comprises a second subset formed by segments which represent a roadpart formed by a curved line and the curved roadpart is represented by a number of line sections, said transposition means determining said number of transposed coordinates by determining, for each segment of said group of said second subset, the perpendicular projection of said vehicle position coordinate on at least one line section of said number of line sections of the considered segment, and said correction unit comprises means for checking whether said transposed coordinate is a point of one of said line sections and for validating said transposed coordinate if it is a point of one of said line sections.

11. A navigation device as claimed in claims 9 or 10, wherein a point of intersection of two successive line sections of said segments forms a breakpoint, said transposition means determining said correction values by determining the distance between said vehicle position coordinate and at least one breakpoint.

12. A navigation device as claimed in claim 8, wherein for each of said segments the axis of the appertaining part of the road is parametrised by means of at least one line section, and said transportation means determines said correction value by determining the distance travelled between a reference point of the relevant segment and said vehicle position coordinate and subsequently transposing said distance on the line sections of the relevant segment with said reference point being the point of departure.

13. A navigation device as claimed in claim 8, wherein said central unit comprises detection means for receiving data representing said driving direction and for detecting therefrom large momentary changes in

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said driving direction and for generating a second correction signal upon ascertaining a large momentary change in said driving direction, said detection means being connected with said route-determining unit for retrieving, under control of said second correction signal, momentary driving route coordinates and for ascertaining whether said momentary driving route coordinates contain coordinates of a nodal point or of a breakpoint and, in establishing coordinates of the nodal point or of the breakpoint, generating a third correction signal to control said transposition means to determine a correction value from the third correction signal.

14. A navigation device as claimed in claim 8, wherein said correction unit includes an operator generator for generating an acceleration operator from said measured speed value and lateral acceleration value and from said vehicle position coordinate, said correction unit including an operation unit having a first input connected to said selection unit for receiving said selected correction value, a second input connected to said operator generator for receiving said acceleration operator and a third input connected to said control unit for receiving a fourth correction signal generated by said correction unit, said operation unit causing said acceleration operator to operate on said selected correction value under control of said fourth correction signal to generate therefrom a correction parameter for a measured acceleration value.

15. A navigation device as claimed in claim 14, wherein said operation unit has an output connected to said position-locating means for delivering the correction parameter to said position-locating means which take up the presented correction parameter in the measured lateral acceleration.

16. A navigation device as claimed in claim 8, which comprises a receiving unit connected to the communication line for receiving position coordinate signals originating from a navigation satellite, and wherein said control unit comprises a mixing unit connected to the communication line for mixing, by means of a Kalman filter and under the control of a mixing signal generated by the control unit, generated vehicle position coordinates with position coordinates received from the navigation satellite, wherein the generated vehicle position coordinates and received position coordinates relate to a corresponding vehicle position, and said mixing unit is connected to the correction unit for receiving the correction value and/or the correction parameter.

17. A navigation device as claimed in claim 7 wherein said central unit includes a memory element for temporarily storing data and having a control input for receiving an enabling pulse generated by said position locating means upon stopping of the vehicle, and wherein the memory element stores the generated vehicle position coordinate under control of the enabling pulse thereby to preserve the vehicle position coordinate when the vehicle is stationary.

* * * * *

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Exhibit 8

-----Original Message-----

From: Robert Swartz
To: Hart, Robert
Sent: 2/26/2004 12:56 PM
Subject: Navigation Patents

As we discussed we have reviewed the material you have sent us.

First we do not believe the Streeter reference is enabling. They never built a device but only said it should be possible to do so. Beyond that there are many claim elements in the ,685 patent which are not anticipated by either the Streeter or the Thoone references. These include distinguishing between legal and physical connectivity which is in claim 1, claim 21, where there is a method for updating the database, claim 41, the use of an object oriented language in the development of the system, claim 43, dealing with various kinds of street configurations including U-turns, forced-turns and rotaries, and,

claim 45, where a description is given long before and at the time the act is to performed. There are also the use of specific kinds of map data and the route finder algorithms which are not described in either of the references.

These are just a few of claims which are not anticipated by either references, there are we believe a number of others.

As we discussed I look forward to meeting with you in the near future.

Bob Swartz
847-945-3300

Exhibit 9

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BRINKS
HOFFER
GILSON
& LIONE

June 25, 2004

Via Overnight Courier

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RE: Invalidity of MIT Patent Nos. 5,177,685 And 6,236,768

Dear Bob:

Thank you for the time to respond to your email of February 26, 2004, to Robert Hart of Harman International Industries, Incorporated ("Harman") and your response to my email of June 2, 2004. This letter responds to MIT's continued assertion of U.S. Patent No. 5,177,685 (the "'685 patent") against the Harman navigation system. Please note that this information, including the prior art and analysis, is by way of example and is not meant to be exhaustive. We are providing this information and analysis to MIT at this time based on our initial review to date, and we reserve the right to supplement in the future as additional information is uncovered.

I. MIT Has Dropped Its Assertion Of U.S. Patent No. 6,236,768

In your email of July 18, 2003, MIT also presented U.S. Patent No. 6,236,768 (the "'768 patent"). However, MIT did not respond to the invalidating prior art Harman provided at the December meeting. This letter, therefore, confirms that MIT is not asserting the '768 patent against Harman, and Harman has closed the matter.

II. The '685 Patent Is Unenforceable Based On Inequitable Conduct Before The United States Patent And Trademark Office

As raised in the written materials Harman provided to MIT in December, Harman is concerned about the many irregularities surrounding the prosecution of the '685 patent. As we continue to investigate this issue, we become more confident that the '685 patent was procured by inequitable conduct. We discuss two of these irregularities below.

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As you know, in the United States, "Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office *all information known to that individual to be material to patentability* . . ." 37 C.F.R. 1.56 (emphasis added). The United States Court of Appeals for the Federal Circuit has held that the determination of inequitable conduct is based on a sliding scale of "materiality" and "intent to deceive." Information is "material" when a "substantial likelihood [exists] that a reasonable examiner would consider it important to deciding whether to" issue the patent. *Fox Indus. v. Structural Preservation Sys.*, 922 F.3d 801, 803 (Fed. Cir. 1990). The more material the omission or misrepresentation, the lower the level of intent required. See *Critikon v. Becton Dickenson Vascular Access, Inc.*, 120 F.3d 1253, 1256 (Fed. Cir. 1997); *Bristol-Myers Squibb v. Rhone-Poulenc Rorer*, 326 F.3d 1226, 1239 (Fed. Cir. 2003) ("Intent to mislead does not require direct evidence, and is typically inferred from the facts.").

A. Streeter Should Have Been Disclosed To The Patent Office

The inventors of the '685 patent were aware of Streeter *et al.*, "How to Tell People Where to Go: Comparing Navigational Aids," *Int. J. Man-Machine Studies*, vol. 22 (1985) ("Streeter"), at the time they filed their application. Yet, they failed to disclose Streeter to the Patent Office. In fact, the inventors considered Streeter to be so material to their invention that they referred to it at least three times in other articles published about their work. For example, in an article published before the filing of the '685 patent, the inventors stated that they were "influenced by an experiment on route following which compared spoken instructions with paper maps." Davis *et al.*, "The Back Seat Driver: Real Time Spoken Driving Instructions," *Proceedings, IEEE Vehicle Navigation and Information Systems Conference, IEEE, Toronto, Canada*, 146-150, 146 (Sept. 1989). The footnote accompanying the above-quoted passage cites Streeter as that influential experiment. See also Schmandt *et al.*, "Synthetic Speech For Real Time Direction-Giving," *IEEE Trans. On Consumer Elec.*, vol. 35, pp. 649-53 (Aug. 1989) (also referring to Streeter for "evidence that drivers do better following spoken directions than reading maps"); see also Davis, "Back Seat Driver: Voice Assisted Automobile Navigation," Ph.D. Thesis, Massachusetts Institute of Technology, at 19 (Sept. 1989) (hereinafter, "Thesis").

Besides failing to disclose Streeter to the Patent Office, one of the inventors mischaracterizes Streeter's teachings in his Thesis. The Thesis characterizes Streeter as requiring the "driver to determine when to carry out the instructions and to decide when the instruction was correctly executed." Thesis, at 19. That statement ignores, however, the clear teaching in Streeter to the contrary:

[g]iven a route, text instructions could be generated and transmitted to an in-car computer and converted to voice by a resident text-to-speech synthesizer.

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Unlike the situation in the present experiment, *a car computer instead of the driver would keep track of interturn mileages and signal the driver of an approaching turn.* Streeter at 561 (emphasis added).

Hence, contrary to the inventors' characterization, Streeter explicitly does *not* require the "driver to determine when to carry out the instructions and to decide when the instruction was correctly executed."

The inventors admitted both knowledge and materiality of Streeter. While the inventors referred to Streeter repeatedly in other publications, they failed to disclose Streeter to the Patent Office, and mischaracterized Streeter in the Thesis that was disclosed to the Patent Office. As presented in the December materials, Streeter anticipates multiple claims of the '685 patent. Under Federal Circuit precedent, a district court should find the '685 patent unenforceable based on the inventors' own admissions about the materiality of Streeter, their mischaracterization, and their blatant omission before the Patent Office. *See, e.g., Critikon*, 120 F.3d at 1257 ("[A] patentee facing a high level of materiality and clear proof that it knew or should have known of that materiality, can expect to find it difficult to establish "subjective good faith" sufficient to prevent the drawing of an inference of intent to mislead," and hence, a ruling on inequitable conduct.)

B. The '959 Patent To Thoone Should Have Been Disclosed To The Patent Office

The inventors also failed to disclose the most relevant reference by the inventor Thoone, the '959 patent. The inventors were aware of Thoone's work because the inventors analyzed an article by Mr. Thoone for the Thesis. The Thesis even commented that the work of Mr. Thoone was "interesting." Thesis, at 107. The inventors submitted the Thoone article to the Patent Office; however, the Thoone '959 patent was not submitted to the Patent Office. Moreover, the Thoone '959 patent discloses more detail about the spoken driving directions that the inventors told the Patent Office was not "appreciated" by the articles' authors. *See* Information Disclosure Statement, Rec. Sept. 10, 1990, at 5. The Thoone patent anticipates multiple claims of the '685 patent. Hence, the Thoone patent also is material prior art that the inventors failed to disclose to the Patent Office; and therefore, provides another basis upon which to find the '685 patent unenforceable due to inequitable conduct.

II. The '685 Patent Is Invalid Based On Prior Art

A. Multiple Claims Of The '685 Patent Are Anticipated By Either Thoone, Streeter, Or Zeevi

As we set forth in the December meeting, both orally and in writing, the asserted claims of the '685 patent are invalid as anticipated by either Streeter or the '959 patent to Thoone

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("Thoone"). Harman provided MIT with detailed claim charts setting forth Harman's invalidity analysis. In addition to Thoone and Streeter, Harman has located U.S. Patent No. 4,878,170 to Zeevi ("Zeevi") that also is a section 102 reference. I have enclosed a copy of Zeevi for your convenience.

B. "Distinguishing Between Legal And Physical Connectivity" Is Taught In The Prior Art

1. MIT's Statements Regarding Thoone Are Incorrect And Do Not Avoid Invalidity

In the June 2 email, Harman requested MIT's interpretation of "distinguishing between legal and physical connectivity." In your June 8 reply, MIT does not construe the phrase, but rather gives examples of what might be included. These examples, however, are not claim limitations. While you state that the "Thoone reference does not teach the use of legal and physical connectivity by computing apparatus in connection with route finding," we disagree. Thoone distinguishes between legal and physical connectivity, and Thoone discloses route finding as claimed. *See, e.g., '959 Pat., col. 9, ll. 28-33; col. 9, l. 50 – col. 10, l. 25.* In addition, the claims of the '685 patent do not *require* the "use of legal and physical connectivity by computing apparatus in connection with route finding." *See, e.g., '685 Patent, col. 30, ll. 1-3 and 14-19.*

Additionally, MIT asserts that "legal connectivity [] includes information about legal and illegal turns, when lane changes are illegal, and when there is physical connectivity but when only official vehicles are allowed" Thoone also teaches a database that includes information regarding the legality of turns. *See, e.g., '959 Pat., Col. 9, ll. 28-32.* So the detail relating to legality of turns is not a basis for overcoming invalidity based on Thoone. Further, neither "illegal lane changes" nor "only official vehicles" is claimed in the '685 patent. Because these characteristics are not specifically claimed, Thoone need not disclose these details. Hence, MIT has not shown that Thoone does not invalidate the '685 patent.

2. MIT's Statements Regarding Streeter Are Incorrect And Do No Avoid Invalidity

MIT asserts that Streeter does not "describe how to build a device." However, "building a device is not claimed" by the '685 patent. Moreover, Harman disagrees with MIT that Streeter "simply says that route finding is possible with no description on how it is done." Streeter discloses the route finding limitation of claim 1 in its entirety:

Given the superiority of voice instructions over maps shown by this experiment, a suitable interface to a navigational guidance system ought to be voice-oriented. To implement such a system requires a computer-stored,

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geographical data base and a way to search such a data base for a route between two points. This is clearly possible with current technology. Streeter at 561.

In addition, Streeter cites to the 1982 work of Elliott and Lesk showing that automatic route selection had already been done. See Streeter at 550, citing Elliott, R. J. & Lesk, M.E. Route Finding in Street Maps by Computers and People, *Proceedings of the AAAI-82 Conference* (1982). The inventors of the '685 patent also cite the Elliott & Lesk article, referred to in Streeter, as "[t]he pioneering work on computer navigation assistance" See Information Disclosure Statement, Rec. Sept. 10, 1990, at 3.

MIT also argues that Streeter does not "teach anything about legal connectivity, which as pointed out above is different than the directionality of streets." Streeter, however, does teach about legal connectivity. As one example, Streeter teaches that the map database includes information regarding "exit and entrance ramps." Streeter at 550. This exit and entrance information is the same type of "legal connectivity" information disclosed by MIT in the '685 patent. Further, please let us know how MIT excludes "directionality of streets" from its interpretation of legal connectivity.

**B. The Geographic Data File Standard Is Prior Art And
"Distinguishes Between Legal And Physical Connectivity"**

Finally, in addition to Streeter, Thoone, and Zeevi, the Geographic Data File Standard (the "GDF Standard"), is prior art and distinguishes between "legal and physical connectivity." See e.g., GDF – SDC, GDF – SDA (Chapters 1-2, Appendix 3, and Appendix 6); GDF – EF (Chapters 2-4 and Appendix). The GDF standard was developed by Philips Corporation (Thoone's employer) and also was not cited during the prosecution of the '685 patent. I have enclosed a copy of that standard for your reference.

In order to maintain the validity of the '685 patent, MIT must have a distinct interpretation of "distinguishing between physical and legal connectivity" that is different from the prior art. Therefore, Harman again asks that MIT provide Harman with its interpretation of "distinguishing between legal and physical connectivity."

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C. The Additional Dependent Claims Raised by MIT Also Are Invalid Based On Prior Art

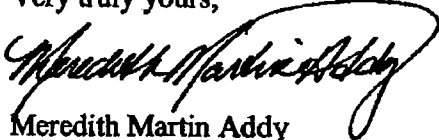
The additional dependent claims raised by MIT in the February 2004 email also are invalid based on at least Thoone, Zeevi, Streeter, and the GDF Standard as shown below:

<u>'685 Claim</u>	<u>Invalid based on:</u>
21	Thoone
41	Zeevi
43	GDF Standard and/or Zeevi
45	Streeter

III. Conclusion

Harman has set forth for MIT multiple reasons why the '685 patent is invalid and unenforceable. Should you have any questions, please contact us.

Very truly yours,



Meredith Martin Addy

cc: Robert Hart, Esq.

MMA:bdn
Enclosures

Exhibit 10

SEP-24-2004 02:51P FROM:

TO: 13123214299

P:2/4

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Via Facsimile
September 23, 2004

Robert Hart
Harman International Industries, Incorporated
Chief Intellectual Property Counsel
8500 Balboa Blvd.
Northridge, CA 91329

Dear Mr. Hart:

As you requested, below is a more detailed response to your letters.

Streeter is not an enabling disclosure and nowhere teaches the invention. There is no way that an ordinary person skilled in the art after reading this reference could have built such a device. All Streeter does is claim that spoken driving directions is a good way of providing vehicle navigation information. In fact MIT awarded a Ph.D. for this work exactly because it was original work. The inventors did not disclose the Streeter reference because they did not believe it was prior art. Consequently, there was no inequitable conduct.

We do not agree about legal and physical connectivity. Although Thoone discloses one way streets, it does not, as previously described, disclose legal connectivity in general, and in addition it does not discuss how this is used in a database or for route finding.

The inventors, as you point out, disclosed what they knew about Thoone in the application. How can there be inequitable conduct here?

Thoone is not enabling. Nowhere does it describe how to do route finding. It refers to a German reference, and thus is not a teaching. It describes one way streets but does not discuss how to distinguish between physical and legal connectivity.

As far as Zeevi is concerned, it does not anticipate the claims of the '685 patent. Zeevi cannot deal with hills and needs to be reset at landmarks, since it does not use three dimensional information from maps. The user in Zeevi has to input his starting position, (See column 7, line 55) If the vehicle is off course it must synchronize with a landmark before a new route can be calculated (See column 23, line 6). The teaching about speech in this patent is one line and in no way teaches how to do this. This is also

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the case with Thoone, which mentions speech only in passing and also does not teach how to deal with the complications of providing the correct instructions at the right time.

Further, even if *arguendo* the references you cite anticipate claim 1 of the patent none anticipate the following claims:

7. The automobile navigation system of claim 1 wherein said map database comprises a three-dimensional representation of street topology.
8. The automobile navigation system of claim 1 wherein said map database includes measures of street quality.
9. The automobile navigation system of claim 1 wherein said map database distinguishes divided streets.
11. The automobile navigation system of claim 1 wherein said map database includes lane information.
12. The automobile navigation system of claim 1 wherein said map database includes speed limits.
14. The automobile navigation system of claim 1 wherein said map database includes time-dependent legal connectivity.
16. The automobile navigation system of claim 1 wherein said map database includes vehicle street, lane, and height restrictions.
41. The automobile navigation system of claim 1 wherein said discourse generator is based on an object-oriented programming methodology.
45. The automobile navigation system of claim 1 wherein said discourse generated comprises a long description of an act given substantially before the act is to be performed and a short description given at the time the act is to be performed.
53. The automobile navigation system of claim 1 wherein said automobile navigation system informs a driver if an error has been made as detected by the location system.

Although you argue that claim 41 is anticipated by Zeevi we find no reference to object oriented languages in the Zeevi patent.

Streeter does not anticipate claim 45, nowhere does it describe giving "a short description given at the time the act is to be performed." The user had to press the controls on the tape recorder to hear the message.

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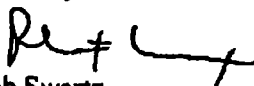
In addition there are a number of claims for which infringement can only be determined by examining the code and design documents for Harman's system. We believe that upon such examination there will be additionally infringed claims.

I would like to make one final point as it relates to Streeter reference. You appear to claim that an ordinary person skilled in the art could build such a device after reading the Streeter reference, but the facts do not support this. As you know, one of the requirements for a Ph.D. thesis is that the work be original. The subject matter of the '685 patent was the basis of a Ph.D. thesis at MIT. It took a significant amount of time to develop, because it was hard and a number of difficult problems had to be solved. MIT is the most preeminent engineering institution in the world. Its faculty is world renowned. The Media Laboratory is one of the most innovative research laboratories in the world. Ph.D.s are only awarded for significant advances. In essence, you are claiming that the thesis committee awarded a Ph.D. for work that they knew was anticipated and that their process for awarding degrees was faulty.

I am under increasing pressure on this matter from MIT. All they see is delay on your part. We waited months to have a meeting, only to have it canceled and be presented with a request for more information. I don't think it will be to any one's advantage if this is taken to a higher level.

When can we meet and resolve this amicably.

Sincerely


Bob Swartz

cc: Meredith Martin Addy

Exhibit 11

Charles G. Call

Patent Attorney

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November 17, 2004

Meredith Martin Addy, Esq.
Brinks Hofer Gilson & Lione
NBC Tower – Suite 3600
455 North Cityfront Plaza Drive
Chicago, IL 60611-5599

Re: M.I.T. Patent 5,177,685 – Harman International Industries, Inc.

Dear Ms. Addy:

I've been asked to respond to Harman's request for a detailed analysis of its allegation that M.I.T.'s Patent 5,177,685 (the "Back Seat Driver Patent") is invalid and unenforceable.

First, I want to thank you for the explanation of Harman's position contained in your letter dated June 25, 2004 and in the claim charts and other materials provided earlier. We agree that a thorough presentation of the views held by both Harman and M.I.T. will go a long way toward a successful resolution of the issues. This letter will explain why we believe that the Back Seat Driver patent is being infringed by Harman, and why we believe that the infringed claims are valid and enforceable.

The "Back Seat Driver" Inventions

Let me begin by reviewing some of the important patented features described and claimed in the Back Seat Driver Patent that we believe Harman is using in its products and which, as discussed later, are nowhere disclosed or suggested in the prior art upon which Harmon relies.

The system described in the Back Seat Driver patent, and Harman's products, compose complex spoken instructions ("discourse") for directing a driver to a destination location specified by the driver from the vehicle's current position determined by a location system. The

patented system and Harman's products include a route-finder which accepts the desired destination from the driver and accepts the vehicle's current position from a location system, consults a map database, computes a route to the destination, and then composes discourse that is translated into spoken form to direct the driver along that computed route from the current position (claim 1).

The Back Seat Driver system and Harman's products calculate a new route if the driver or vehicle navigation system makes an error or if the route is unnavigable due to unforeseen circumstances. The calculation produces an entirely new route that does not simply backtrack to the point of the error if a better route from the current location exists (claim 28). The patented system and Harman's products are able to respond automatically if the vehicle goes off the previously calculated route for some reason by calculating a new route while the automobile is in motion, with the new route beginning from the location of the vehicle at the time the calculation of the new route is completed (claim 29). The Back Seat Driver system and Harman's products allow the driver to indicate that instructions given by the system are impossible to complete for some reason and that a new route must be calculated (claim 49).

The Back Seat Driver system and Harman's products produce a long description of an act given substantially before the act is to be performed followed by a short description given at the time the act is to be performed (claim 45). The Back Seat Driver system and Harman's products are responsive to a user-model defined by stored data so that the spoken instructions may be customized to meet the requirements and preferences of the driver (claim 54). The Back Seat Driver system and Harman's products use digitized speech, which is easier to understand than synthetic speech (claim 56).

The Extent of Harman's Infringement

Harman's products infringe at least 24 claims of the Back Seat Driver Patent as explained in the attached chart comparing the infringed claims with the known features of Harman's products. Insufficient information is available concerning the internal structure and operation of the Harman products to permit a determination to be made with respect to most of the remaining claims. For example, claims 2-20 set forth specific types of data that may be included in a navigation map database to provide special features and functions, but we do not have adequate

information on the makeup of the database used in Harman's products to determine whether those claims are infringed. Harman can and should make its own determination of the extent to which it makes use of features specified in the remaining dependent claims and whether such features are described in the prior art in the combinations claimed in the Back Seat Driver patent.

Harman's Allegation of Invalidity

Harman has alleged that multiple claims of the Back Seat Driver Patent are invalid in view of the following three references:

- A. "How to Tell People Where to Go: Comparing Navigational Aids" by Streeter, L., Vitello D. and Wonsiewicz, S.; *International Journal of Man-Machine Studies* (1985) 22, pp. 549-562 (the "Streeter paper");
- B. Patent 4,758,959 issued to Thoone et al. (U.S. Philips) on July 19, 1988 (the "Thoone patent"); or
- C. Patent 4,878,170 issued to Zeevi on October 31, 1989 (the "Zeevi patent")

For the reasons discussed individually below, none of these references discloses or suggests the novel subject matter set forth in any of the asserted claims. After discussing each of these references, I will explain why Harman's allegation of unenforceability is also baseless.

The asserted claims enjoy a presumption of validity

It is important to note, at the onset, that the Back Seat Driver Patent, like any issued patent, enjoys a statutory presumption of validity which extends to each and every claim. 35 U.S.C. § 282 provides:

35 U.S.C. 282 Presumption of validity; defenses.

A patent shall be presumed valid. Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims. * * * The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.

As a result of this presumption, Harman must demonstrate invalidity for each infringed claim of a patent by "clear and convincing" evidence. See, e.g., *Crown Operations Int'l. v. Solusia Inc.*,

289 F.3d 1367, 1378 (Fed. Cir. 2002). As discussed next, the prior art which Harman relies upon falls far short of establishing invalidity for any of the asserted claims, let alone all twenty four claims which have thus far been identified as being infringed.

The Streeter paper

The study described in the Streeter paper compared a driver's ability to follow routes by following spoken instructions with his or her ability to follow a printed route map, and concluded that "drivers who listened to directions drove to destinations in fewer miles, took less time, and showed about 70% fewer errors than map drivers." In the study described in the Streeter paper, drivers followed pre-recorded spoken instructions which were produced by pressing the play and rewind buttons on a tape recorder.

Streeter et al. neither built nor used, and never attempted to build or use, nor does their paper purport to describe, an operable navigation system. The paper thus falls far short of the requirement that, to serve as an anticipating reference, it must contain a disclosure that is adequate to enable one of ordinary skill in the art to make and use the claimed invention without further experimentation. As stated in *Elan Pharmaceuticals, Inc. Et Al. V. Mayo Foundation For Medical Education And Research*, 346 F.3d 1051 (Fed Cir. 2003), "to serve as an anticipating reference, the reference must enable that which it is asserted to anticipate," citing *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566, 37 USPQ2d 1618, 1624 (Fed.Cir.1996) ("To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter.").

The requirement for an enabling disclosure has long been well established law. As the Supreme Court stated, in *Seymour v. Osborne*, 78 U.S. 516, 555 (1870):

" . . . unless the [prior art] description and drawings contain and exhibit a substantial representation of the patented improvement, in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains, to make, construct, and practice the invention to the same practical extent as they would be enabled to do if the information was derived from a prior patent. Mere vague and general representations will not support such a defence, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use. Whatever may be the particular circumstances under which the publication takes place, the account published, to

be of any effect to support such a defence, must be an account of a complete and operative invention capable of being put into practical operation.”

Your letter of June 25, 2004 suggested that the fact that Streeter et al. failure to teach how to build a device is excused because “‘building a device’ is not claimed in the ‘685 patent.” But the law requires that a reference describe how to make the claimed invention, which in this case is an “automobile navigation system” and all of its claimed constituent elements. Streeter et al. don’t do that.

The Streeter paper fails to provide an enabling disclosure of several key elements of the invention set forth in the claims as discussed below:

- The paper doesn’t explain how to program a computing apparatus to coordinate system processes, nor does it describe what these system processes should be. Streeter et al. state that “Unlike the situation of the present experiment, a car computer instead of the driver would keep track of interturn mileages and signal the driver of an approaching turn” but the reader is left to guess how that the car computer is to perform either function. The lengthy effort required to create the patented Back Seat Driver system at M.I.T. demonstrates that designing, building and using a complete and operational system requires a significant and lengthy effort and the development of numerous complex techniques, none of which are disclosed in the Street paper.
- The Streeter paper doesn’t describe how to use a computer in combination with a map database that distinguishes between physical and legal connectivity. While the Streeter paper recognizes part of the problem, and acknowledges that “route planning, as a minimum, requires storing knowledge of the road-system topology, the distances between intersections, direction of travel of streets, and placement of exit and entrance ramps to major road,” the paper doesn’t describe the structure or content of a database that would accomplish those objectives, nor does it describe the system processes needed to use such a database to perform the functions set forth in the claims. The Streeter paper cites an article by Elliott and Lesk (1982) for disclosure of “promising initial results” but an inspection of the cited Elliott and Lesk article reveals that it too fails to describe an workable automobile navigation system and instead merely discusses the results obtained from various algorithms used to search a “database using a street map

and a telephone book.” The Elliott and Lesk paper indicates that the DIME (Dual Independent Map Encoding) map data was used, but there is no suggestion in the Elliott and Lesk article that the DIME map database was or should be extended to distinguish between physical and legal connectivity. As explained in the Back Seat Driver Patent (col. 4, ln. 61 *et seq.*):

“The DIME file is not adequate for routing finding and is only marginal for generating route descriptions. The most important problem with the DIME format is that it indicates only if two segments are physically connected (that is, if they touch), but not whether they are legally connected (i.e. whether it is legal to travel from one to the other). Legal connectivity is crucial for route finding. * * * The most significant extension of the DIME file format required for its use in a vehicle navigation system is the explicit representation of legal connectivity. This can be accomplished by adding a legal connection list at each endpoint of a segment to indicate all segments which are legally accessible from that endpoint. This allows the route finder to consider only legal paths. To the inventor's knowledge, this has not been included in any other navigation system.”

- The Streeter paper doesn't describe or how make and use a location system that accepts data from a position sensing apparatus and consults a map database to determine the automobile's current position with respect to the map database. The Streeter paper acknowledges that “there also has to be an accurate means of tracking the vehicle's position as it moves through a road system” and identifies three methods doing that: (1) radio methods, (2) dead reckoning, and (3) proximity or sign post methods; but nowhere is it suggested that any of these three methods could or should consult a map database to determine the automobile's current position with respect to the map database as claimed. The Streeter paper says the dead reckoning method should have the ability to reinitialize the dead reckoning system's positional information to eliminate accumulating errors, and cites the Honda Electro-Gyrator as a commercially available dead-reckoning system, identifying the article by Jurgen, R.K, “Drivers get more options in 1983,” IEEE Spectrum, (Nov.1982) pp. 30-36. A Google search reveals that the *Electro-Gyrator* was co-developed by Honda and Alps (Japan) in 1981, and US Patent 4,628,456 assigned to ALPS and filed in Aug. 1982 is believed to describe the Electro-Gyrator in some detail, revealing that this ALPS position tracker used a map on film (not a database), and the route-tracker used a speed and direction system to move a cursor with respect to the

film map, and was reset manually by positioning the cursor where the car is on the map and pressing reset. In other words, the Electro-Gyrator is reinitialized to a position supplied by the user, not to a position computed by reference to map data; moreover, the Electro-Gyrator merely reset the current position of the vehicle with respect to the printed map, and did not calculate a route from that vehicles current position to a driver-specified destination.

- The Streeter paper doesn't describe a location system (as described above) nor does it describe how to build an operational route finder in which such a location system is functionally connected to a computing apparatus which accepts a desired destination from the driver input and the current position from the location system, consults a map database that distinguishes physical from legal connectivity, and computes a route to the driver-supplied destination from the current position supplied by the location system as claimed. The Streeter paper describes a route finder that calculates a route from starting position and a destination position provided by a human, but nowhere suggests a route finder could or should be built which calculates a route to a user-supplied destination from the vehicle's current position with respect to map data as determined by a computerized location system.
- The Streeter paper does not describe how to make and use a workable discourse generator functionally connected to computing apparatus for accepting the current position from a location system and the route from a route finder, for consulting a map database, and for composing discourse including instructions and other messages for directing the driver to the destination from the current position from a location system. The Streeter paper only says: "We designed instructions that were automatable. That is, given a machine readable geographic database and a route between a starting location and destination, instructions could be generated using the database and an instruction generating program." But observing that something could be done falls far short of providing an enabling disclosure of how to do it. Streeter et al. never suggest that they themselves constructed, or attempted to construct, a workable navigation system. Nor did they acknowledge the manifold technical challenges that would confront anyone who

did attempt to build a workable vehicle navigation system of the type claimed. Streeter et al. simply left those problems to future workers. The Streeter et al. paper plainly fails to provide a disclosure that would have enabled one of ordinary skill to build a complete and operable navigation system as the law requires. Moreover, even if a system was constructed to conform to the very limited disclosure provided by the Streeter et al. paper, the resulting device would not perform as claimed in the Back Seat Driver patent for the reasons given above.

The Thoone patent

The Thoone patent describes a navigation system which uses a position sensor for determining the location of a vehicle on a specified route from a starting position to a destination position. The navigation system described in the Thoone patent first finds a route between a driver-specified starting position and a driver-specified destination position, and then tracks the vehicle's progress on that route by comparing the vehicle's position coordinates with the calculated route. Most of the disclosure of the Thoone patent is devoted to a position detection mechanism in which position data derived from motion sensors is corrected by comparing it with map data or the data from a GPS system. But the correction of measured position data by constraining it to match map data is acknowledged to be well known. The Back Seat Driver Patent notes that "Every dead reckoning system uses some form of map matching," and notes that prototypes of the Back Seat Driver Patent used a unit built by NEC Home Electronics, Ltd.

Position sensing is only one aspect of the claimed invention, which also employs specifically defined mechanisms for performing route-finding and generating discourse including spoken instructions. These other elements of the claimed invention are not taught by the Thoone patent.

Like the Streeter paper, the Thoone patent does not describe a route-finder that accepts (1) a destination position from the driver, and (2) the vehicle's current map position supplied by a location finder, and then computes a route from a map database using these two inputs. Instead, Thoone teaches first calculating a route from driver-supplied starting and destination positions, as well as other driver-supplied preferences (see column 9, line 50 et seq. of Thoone),

and then using motion data to track the vehicle along the calculated route (column 10, line 26 et seq.).

Moreover, the Thoone patent does not describe a discourse generator that accepts (1) a destination position from the driver, (2) vehicle's current map position from a location finder, and (3) a route from the claimed route-finder, and then generates discourse including instructions and other messages for directing the driver to the driver-supplied destination from the current position supplied by the location finder.

The Thoone patent provides little information regarding the generation of spoken instructions. The entire disclosure on that subject is limited to the following passages:

"By comparison of the vehicle position coordinates with the geographic data that pertain to the driving route, the progression of the vehicle along the driving route can be followed and the correct navigational instructions can be communicated to the driver via the communication unit." [column 1, lines 53-58]

* * *

"The communication unit 18 further contains a loudspeaker 10 which is connected via a speech generator 14 to the bus 4, and further an image generator 15 to which a display device 11 is connected. The loudspeaker 10 may form part of the sound installation with which the vehicle is equipped. Through the loudspeaker and/or the image display device the user is given information on the road to be followed in order to reach the destination. It is not necessary for the navigation system to contain both the loudspeaker and the image display device; one of the two is sufficient." [column 8, lines 15-26]

* * *

"Determination of the route to be followed and the giving of navigation information to the driver are done in the known manner, as described for example in "Forschung Strassenbau und Strassenverkehrstechnik, Heft 222, 1978" and published by the German "Bundesminister fur Verkehr" in Bonn." [column 10, lines 20-25].

Thus, although the Thoone Patent suggests that instructions may be delivered to the driver via a speech generator and a loudspeaker, there is no disclosure of the manner in which these instructions should be generated, other than by indicating that the giving of navigation information is done in a known matter, citing the 1978 German publication. A copy of that German publication was located with some difficulty,¹ reviewed, and found to describe the simulation of traffic in a network and its use in steering traffic in more efficient ways, and not in

¹ The citation given in the Thoone patent erroneously gives the publication data as "1978" whereas the correct date

finding of routes for an actual driver or providing automated instructions to individual drivers. This German publication the only description Thoone provides for the supposedly “known manner” for the “determination of the route to be followed and the giving of navigation information to the driver.” Thus, both Thoone and the cited German publication fails to describe how spoken discourse is composed and generated, or how routes are calculated en-route from an individual vehicle’s current location from a position sensor and a destination position provided by the driver.

The Zeevi patent

The Zeevi patent describes a system that processes distance traveled data from the vehicle’s odometer and change-of-direction data derived from the steering wheel movements to track the vehicle’s movement along a pre-calculated route from driver-supplied, keyboard-entered, starting and destination positions on a map. The map data indicates the distance between intersections, which the Zeevi system compares with the odometer distance measurement to permit a command of “left” or “right” or “forward” to be produced when the vehicle arrives at the next intersection.

Like Streeter et al. and Thoone, Zeevi does not disclose calculating a route from the current vehicle position produced by a position sensor to a driver-supplied destination location. Moreover, Zeevi fails to disclose a system capable of generating “discourse” as disclosed and claimed in the Back Seat Driver Patent. The one-word commands “left,” “right,” and “forward” disclosed by Zeevi fall far short of being “discourse,” a term whose meaning is clearly defined: “formal and orderly and usually extended expression of thought on a subject,” *Webster’s New Collegiate Dictionary*; “extended verbal expression in speech or writing,” <http://wordnet.princeton.edu>; “the most comprehensive level of linguistic analysis, which encompasses language use at the level beyond the sentence, such as in conversation, in paragraphs, and so on,” <http://ess.ntu.ac.uk/miller/cognitive/langgloss.htm>.

The allegation of unenforceability

Harman's suggestion that the inventors intentionally withheld material prior art from the Patent Office is baseless. There was plainly no intent to hide either the Streeter paper of the Thoone patent and, as discussed above, neither reference anticipate the claims of the Back Seat Driver patent. Nothing the inventors did or did not do will support the asserted inequitable conduct defense.

Although often alleged, inequitable conduct is rarely found by the courts since there needs to be "clear and convincing" evidence of both materiality and deceptive intent. *See Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.3d 867, 876 (Fed. Cir. 1988) (holding that there must be "clear and convincing" evidence that material information was known by inventor and was misrepresented or withheld for the purpose of deceiving or misleading examiner into granting patent; carelessness or negligence is insufficient). This high standard means that allegations of inequitable conduct rarely succeed. *See Burlington Indus., Inc. v. Dayco Corp.*, 849 F.2d 1418, 1422 (Fed. Cir. 1988) (stating that "charging reputable lawyers" with inequitable conduct on "slenderest of grounds" detracts from "rightful administration of justice"). In light of this extremely high standard, Harman's "evidence" of inequitable conduct falls far short as discussed below.

Materiality and intent are two distinct threshold elements of finding inequitable conduct; and both must be shown. *See Molins*, 48 F.3d at 1178 (stating two elements are separate); *see also Allen Organ Co. v. Kimball Int'l. Inc.*, 839 F.2d 1556, 1567 (Fed. Cir. 1988) (stating that "materiality does not presume intent, which is a separate and essential component of inequitable conduct"). Upon finding materiality and intent, the Court must then make an equitable judgment in light of all the circumstances whether the applicant's conduct is "so culpable that the patent should not be enforced." *See Molins*, 48 F.3d at 1178. Mere failure to disclose a prior art reference to the P.T.O. does not constitute inequitable conduct; non-material or cumulative references need not be cited. *See, e.g., Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 126 F. Supp.2d 69, 137 (D. Mass 2001) (Young, C.J.) (citing cases) (stating that references need not be cited to Examiner when they are cumulative or less material than references already before Examiner). Instead, inventors and prosecuting attorneys must (and should) only inform the Examiner of "material" prior art. *See* 37 CFR § 1.56 (2000) (establishing duty to cite "material"

information to Examiner). According to the Federal Circuit, information is “material” when “there is a substantial likelihood that a reasonable examiner would have considered the information important in deciding whether to allow the application to issue as a patent.” *Molins*, 48 F.3d at 1179. This necessarily means that information that is less pertinent or cumulative than what is already before the Examiner is not material. *See id.* Harman has ignored this test of materiality and suggests that mere knowledge of information that is not disclosed to the Examiner constitutes inequitable conduct.

The inventors of the Back Seat Driver system were indeed aware of the Streeter et al. paper. As discussed above, the Streeter paper describes in detail experiments that were performed comparing the performance of drivers who followed printed route maps with those who were given tape recorded vocal directions. The Streeter et al. paper was identified and given credit in papers written by the inventors that were incorporated into their patent application by reference. These papers acknowledged that the inventors were “influenced by an experiment on route following which compared spoken instructions with paper maps.” There was plainly no attempt whatsoever to conceal the Streeter paper. Indeed, the circumstances that Harman relies upon provide “clear and convincing” evidence that the Streeter paper was not misrepresented or withheld for the purpose of deceiving or misleading examiner into granting a patent as the law requires.

The inventors had no reason to believe that the Streeter paper taught a computerized navigation system as claimed in their patent, and indeed, as discussed at length above, that paper not contain a disclosure of the subject matter claimed, nor for that matter did it purport to contain an enabling description of complete and operable automatic navigation system of any kind.

Similarly, the inventors of the Back Seat Driver system plainly did not attempt to hide the Thoone patent. The inventors cited the Thoone article, which they did know about, to the Patent Office, but there is no evidence that the inventors were aware of the patent that Thoone obtained based on a later patent application filed after the 1984 Thoone paper was published. The Davis Thesis makes it clear that, while the inventors were aware that “The Phillips corporation, in the Netherlands, is developing a prototype car information and navigation system called CARIN (citing the 1984 Thoone paper) . . . but very little has been published about it.” It is accordingly clear that the inventors did not in fact know that further information had been published in an

issued patent. Moreover, as discussed above, the Thoone patent does not disclose or suggest the subject matter claimed in the Back Seat Driver patent.

Conclusion

Both the Harman/Kardon TrafficPro and the Harman RB4 navigation system provide the complex spoken instructions needed to allow the driver follow a calculated route from the vehicle's current position to a driver-specified destination while keeping his or her eyes on the road. Both systems perform automatic re-routing when a driver changes course or misses a turn, causing the system to recalculate a new route to the driver-specified original destination. As discussed above, these and other important features clearly set forth in all claims of the Back Seat Driver Patent are being used in the accused Harman systems, and are neither disclosed nor suggested in any of the references upon which Harman relies.

A license under the Back Seat Driver patent is available from M.I.T. on reasonable terms. We appreciate having been given this opportunity to explain in more detail why Harman needs such a license. Harman should feel free to contact Bob Swartz at the Media Laboratory to discuss obtaining a license under the patent.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. G. Call', with a long horizontal stroke extending to the right.

Charles G. Call

cc: Robert Hart, Esq. (with attachment)
Robert Swartz (with attachment)
CGC:pc

Exhibit 12

Harman International

Background

- December 2003
 - Harman/MIT meeting. Harman provides MIT with *prima facie* showing of invalidity.
- September 2004
 - Swartz letter setting forth MIT's response.
- November 2004
 - MIT provides its detailed analysis by MIT's patent counsel.
- January 2005
 - Harman/MIT meeting.

MIT's Infringement Analysis Reads Directly on the Prior Art

- Under MIT's claim construction, claim 1 is invalid based on the references previously cited and also based on other references, such as Harris.

MIT's Infringement Analysis Reads Directly on the Harris

2005-11-17 Call Letter –

Claim 1, pp. 1-2

Harris Reference, pp. 83-84

The patented system and Harman's products include:

Harris includes:

a route-finder which accepts the desired destination from the driver and accepts the vehicle's current position from a location system,

computation of a route from the destination, current position, and a location system,

consults a map database, computes a route to the destination, and then

consults a map database, and computes a route to the destination, and then

composes discourse that is translated into spoken form to direct the driver along that computed route from the current position (claim 1).

composes instructions for directing the driver to the destination from the current position from the location system by consulting the map database.

MIT's Infringement Analysis is Inconsistent with its Invalidity Analysis

- **Settled precedent:** Claims must be construed the same for infringement as for validity.
- However, MIT construes its claims broadly for infringement and then narrowly for invalidity.

Claims Must Be Construed the Same for Infringement as for Validity

- **For example:** MIT asserts that Streeter is not enabling because it does not:
 - “describe the structure or content of the database”
Call letter at 5.
- *But*, MIT does not require the “structure and content of the database” to be read-into the claims for its infringement analysis.
- **Settled precedent:** Claims must be construed the same for infringement as for validity.

MIT's Infringement Analysis is Inconsistent with Its Own Claim Charts

- MIT asserts that “Harman’s products infringe at least 24 claims of the Back Seat Driver Patent as explained in the attached chart comparing the infringed claims with the known features of Harman’s products.” Call letter at 2.
- Those claims are: 1, 11, 19-21, 27-29, 32-36, 45-49, and 53-58.

MIT's Infringement Analysis is Inconsistent with Its Own Claim Charts

'685 Claims

Call Claim Chart

"57. The automobile navigation system of claim 1 wherein said computing apparatus is not installed in the automobile, . . ."
(emphasis added)

57. "Harman's computing apparatus is installed in the automobile."
(emphasis added)

"58. The automobile navigation system of claim 57 wherein said means for communication is two cellular phones in said automobile . . ." (emphasis added)

58. "Harman does not use two cellular phones."
(emphasis added)

MIT's Validity Analysis Uses the Wrong Legal Standards

- **Improper Standard:** MIT asserts that Streeter is not enabling because Streeter “neither built nor used, and never attempted to build or use, nor does their paper purport to describe, an operable navigation system.” Call letter at 4.
- **Proper Standard:** A reference can be enabling even if the device was never built. See *Pfaff v. Wells Elecs.*, 525 U.S. 55, 61 (1998).

MIT's Validity Analysis Uses the Wrong Legal Standards

- **Improper Standard:** MIT asserts that “[T]o serve as an anticipating reference, it must contain a disclosure that is adequate to enable one of ordinary skill in the art to make and use the claimed invention without further experimentation.” Call letter at 4 (emphasis added).
- **Proper Standard** for enablement is:
 - Experimentation cannot be “unduly extensive.”
Utter v. Hiraga, 845 F.2d 993, 998 (Fed. Cir. 1988) (emphasis added).

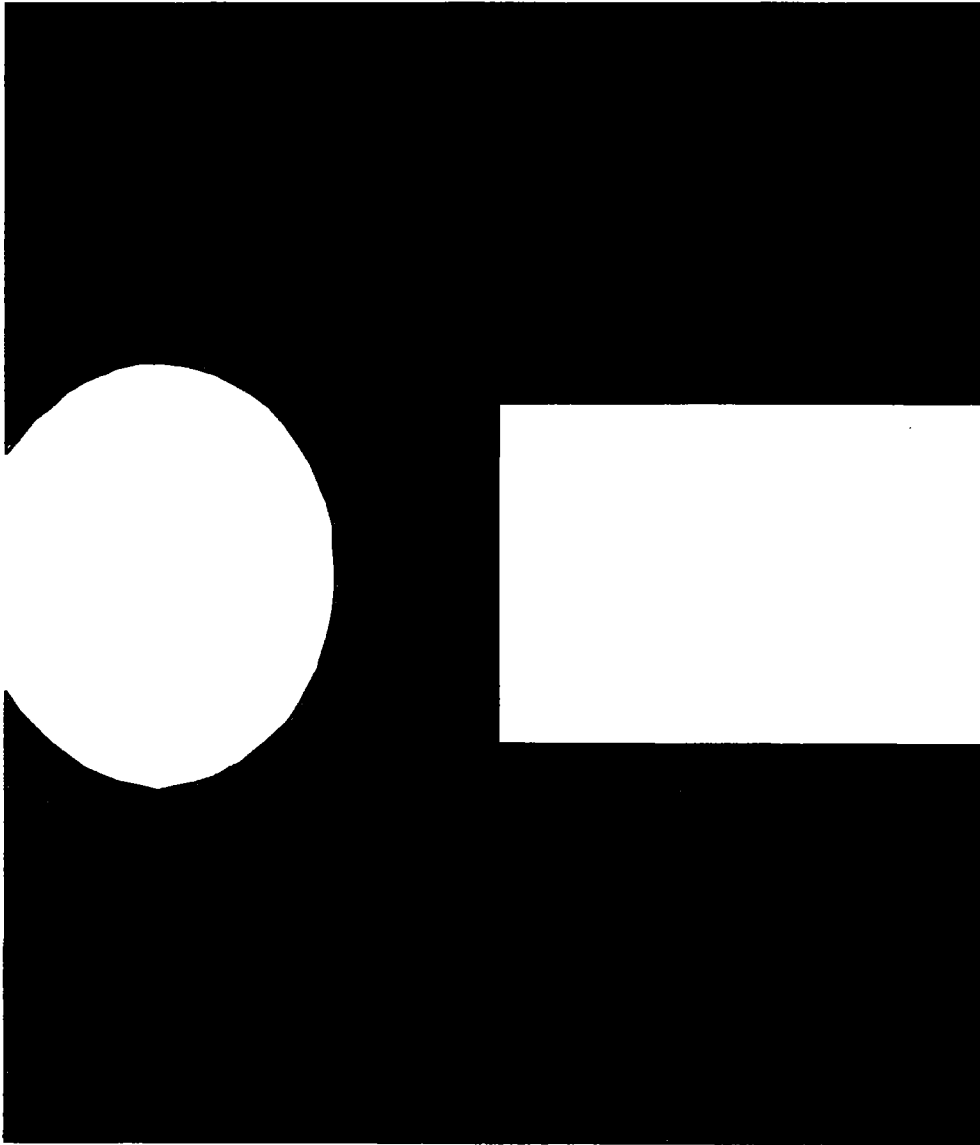
MIT Ignores Its Problems with Inequitable Conduct

- Inequitable conduct exists if:
 - 1) material information is withheld from the PTO,
and
 - 2) there is an intent to mislead or deceive the PTO
into allowing the claims.
 - When the withheld information is highly material,
a lower showing of deceptive intent is sufficient to
establish inequitable conduct.

MIT Ignores Its Problems with Inequitable Conduct

- At least Streeter and Thoonen are:
 - Known to patentee
 - Admittedly highly material to the patent
 - Uncited to the PTO and mischaracterized in the Thesis.

- MIT's position cannot get better than it is at present.



harman international

Exhibit 13

MEREDITH MARTIN ADDY
312-321-4280
maddy@usebrinks.com



January 19, 2005

Via Hand Delivery

Robert Swartz
Manager, Intellectual Property
New Media Laboratory
Massachusetts Institute of Technology
Room E15-208
20 Ames Street
Cambridge, MA 02139-4307

RE: Invalidity of MIT Patent No. 5,177,685

Dear Bob:

We appreciate being able at last to review MIT's patent position as presented in the November 17, 2004 letter from Charles Call. Given MIT's positions, we are more certain that U.S. Patent No. 5,177,685 (the "'685 patent") is invalid and unenforceable. MIT bases its arguments either on irrelevant aspects or misinterpretation of the Streeter, Thoone, and Zeevi references. Moreover, MIT's claim construction eviscerates distinctions made during prosecution, and hence, also renders the '685 patent invalid based on references such as Harris. Finally, MIT's analysis of inequitable conduct misapplies the law and fails to acknowledge the facts that support inequitable conduct.

Given the evidence of invalidity, as strengthened by MIT's own positions on infringement, and the strong evidence of inequitable conduct, MIT certainly can imagine that it is difficult for Harman to consider taking a license under the terms that previously

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have been proposed. The analysis provided below is based on our review to date, and we reserve the right to supplement in the future as additional information is uncovered. By providing this response, Harman is not waiving any of its arguments relating to noninfringement or invalidity.

I. Claim Construction

MIT defines claim 1 as the following:

The patented system and Harman's products include a route-finder which accepts the desired destination from the driver and accepts the vehicle's current position from a location system, consults a map database, computes a route to the destination, and then composes discourse that is translated into spoken form to direct the driver along that computed route from the current position (claim 1).

Call Letter at 1-2. Under this construction, claim 1 is invalid, not only based on the references cited in previous correspondence, but also based on references cited during the prosecution of the '685 patent because this construction eviscerates distinctions made during prosecution to obtain allowance.

For example, "Digital Map Dependent Functions of Automatic Vehicle Location Systems," by C. B. Harris et al., IEEE Position and Location Symposium, pp. 79-87, 1988, IEEE CH2675-7 ("Harris") renders claim 1 invalid under MIT's claim construction. MIT's construction ignores arguments made during the prosecution of the '685 patent to distinguish Harris, as shown in the following:

These maps have some questionable design decisions on the representation of legal restrictions. . . . The Calgary map [Harris reference] represents legal topology (one ways, banned turns) as a link attribute instead of in the network topology. It may be that the street network

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represents only physical topology, with the assumption that legal topology will be equivalent to the physical topology unless specially indicated.

The Back Seat Driver appears to be unique in maintaining separate but equal representations for physical and legal topology. These two topologies should be integrated because legal topology is needed for route finding, and physical topology for route description.

Information Disclosure Statement, p. 9. Appendix 1 of this letter includes the chart for claim 1 from pages 1 and 2 of the appendix to Mr. Call's letter and adds the disclosure from the Harris reference in the right-hand column. Appendix 1 shows that, under MIT's claim construction, Harris anticipates at least claim 1.

MIT further argues that Harman infringes claims 11, 19-21, 27-29, 32-36, 45-49, and 53-58. Harman does not agree with the claim construction proffered by MIT, or the conclusion that Harman infringes these claims. In fact, MIT admits in its own documents that Harman does not infringe at least some of these asserted claims. *See, e.g.*, claim 57 ("The automobile navigation system of claim 1 wherein said computing apparatus is not installed in the automobile, . . .") and MIT's analysis: "Harman's computing apparatus is installed in the automobile"; claim 58 "The automobile navigation system of claim 57 wherein said means for communication is two cellular phones in said automobile . . ." and MIT's analysis: "Harman does not use two cellular phones."). Regardless, even under MIT's construction, these claims also are invalid as shown in the enclosed chart at Appendix 2.

II. Invalidity Positions

As an initial matter, MIT's analysis entirely fails to address the invalidity of the claims due to the Geographic Data File Standard. Moreover, the letter merely focuses on

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invalidity due to anticipation, and fails to address invalidity of the claims due to obviousness. Regardless, we address MIT's arguments, noting that MIT focuses on irrelevant aspects or misinterpretations of Streeter, Thoone, and Zeevi.

A. The Streeter Reference

MIT argues that Streeter is not enabling. However, these arguments fail both legally and factually. MIT contends that for enablement, the Streeter disclosure must be adequate for one of ordinary skill in the art to make and use the claimed invention "without further experimentation." Call letter at 4. While Harman disagrees that one of ordinary skill would need to experiment after reading Streeter, MIT applies the wrong standard. The legal standard for determining whether a reference is enabling is whether the disclosure is adequate for one of ordinary skill in the art to practice the invention without experimentation that is "unduly extensive." *Utter v. Hiraga*, 845 F.2d 993, 998 (Fed. Cir. 1988). Hence, a reference may be enabling even though some experimentation is necessary to make the device work. *Bruning v. Hirose*, 161 F.3d 681, 686 (Fed. Cir. 1998). MIT cites a case from the pharmaceutical context, *Elan Pharmaceuticals, Inc. v. Mayo Foundation for Medical Education & Research*, which is inapposite to whether the Streeter reference is enabling. In the programming context, Streeter is enabling at least because, as Streeter itself discloses, a programmer of reasonable skill could write a satisfactory navigational program with ordinary effort given the teachings of the Streeter reference:

To implement such a system requires a computer stored, geographical data base and a way to search such a data base for a route between two points.

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This is clearly possible with current technology. . . . Given a route, text instructions could be generated and transmitted to an in-car computer and converted to voice by a resident text-to-speech synthesizer chip.

See Streeter at 24; *see also Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 943 (Fed. Cir. 1990). Finally, MIT argues that Streeter is not enabling because Streeter did not build or use an operable navigation system. Call Letter at 4 (“Streeter et al. neither built nor used, and never attempted to build or use, nor does their paper purport to describe, an operable navigation system. The paper thus falls far short of the requirement that, to serve as an anticipating reference, it must contain a disclosure that is adequate to enable one of ordinary skill in the art to make and use the claimed invention without further experimentation.”) Again, this is simply not the standard for determining whether a reference is enabling. A reference can be enabling even if a device has never been built. *See Pfaff v. Wells Elecs, Inc.*, 525 U.S. 55, 61 (1998).

MIT fails to point to a single limitation from the asserted claims of the '685 patent that is missing in Streeter. Rather, MIT argues that certain claim limitations disclosed in Streeter are not enabled by Streeter. Harman disagrees. MIT states that Streeter does not explain: (1) how to program a computing apparatus to coordinate system processes, or (2) how to make a workable discourse generator. As support, MIT generally refers to the “significant and lengthy effort” and the “development of numerous complex techniques” by MIT. Call Letter at 5. MIT further asserts that there are “manifold technical challenges” in building a workable navigation system. *Id.* at 7. However, MIT fails to cite any of the “numerous and complex techniques” or “manifold technical challenges,”

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and none of these “techniques” or “challenges” are ’685 claim limitations, as required to overcome Streeter.

MIT acknowledges that Streeter teaches that the map database should include “road-system topology, the distances between intersections, direction of travel of streets, and placement of exit and entrance ramps to major road.” Yet, MIT states that the Streeter reference “doesn’t describe the structure or content of the database that would accomplish those objectives” Call letter at 5. Again, this is not the standard for determining whether a reference is enabling. The standard is whether one of ordinary skill in the art can practice the invention without experimentation that is “unduly extensive.” *Utter*, 845 F.2d at 998. Streeter provides precisely that information by teaching that a computer stored database is “clearly possible with current technology.” Streeter at 24. Moreover, by requiring the database structure to be improperly read-into the claim limitations of the ’685 patent, MIT’s invalidity analysis is inconsistent with MIT’s infringement analysis. Claims must be interpreted the same way for infringement and validity. *See J.T. Eaton & Co. v. Atlantic Past & Glue Co.*, 106 F.3d 1563, 1570 (Fed. Cir. 1997).

While MIT acknowledges that Streeter teaches three location systems: (1) radio methods, (2) dead reckoning, and (3) proximity or sign post methods, MIT also argues that “nowhere is it suggested that any of these three methods could or should consult a map database to determine the automobile’s current position with respect to the map database as claimed.” Call Letter at 6. This is incorrect. As the ’685 patent states, and

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MIT quotes in the same letter, "Every dead reckoning system uses some form of map matching." Col. 12, lines 58-59; Call Letter at 8. Therefore Streeter, which teaches dead reckoning, teaches map matching. In addition, Streeter teaches consulting a map database to determine the automobile's current position, as shown in the following:

With an inertial guidance system communicating with a geographical data base, it would be possible to determine when the driver had made an error. Thus, knowledge of the road system would make it possible to reinitialize the driver's position, which is not possible using only an inertial guidance system.

Streeter at 561.

Finally, MIT states that Streeter does not teach route calculation where the starting position is determined by the location system. Again, this is incorrect. Streeter teaches that the inertial guidance system, communicating with the map database, allows the system "to reinitialize the driver's position" Streeter at 561. Thus, Streeter teaches determination of the vehicle's current position by the location system. MIT's flawed reliance on enablement reveals the strength of Streeter.

B. The Thoone Patent

MIT proffers only two arguments to rebut invalidity based on Thoone; neither argument has merit. First, MIT argues that Thoone only teaches manually inputting the starting position for calculating the route. While Thoone teaches manual input of the starting position and uses the starting position for route calculation, Thoone also teaches that the starting position of the vehicle may be determined from the location system:

When now the vehicle is stopped, then in fact the last-determined coordinates are the coordinates of the starting point of the next journey

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made by the vehicle. Since these last-determined coordinates are now accurately known, they can readily be used as the starting position for the next journey. To this end the central unit is provided with a non-volatile memory, for example incorporated in the position-locating means, in which non-volatile memory these last-determined vehicle position coordinates are stored. The non-volatile memory is for example powered by the storage battery of the vehicle and is charged under control of a charging pulse generated upon stopping the vehicle, for example from the switching-off of the ignition.

Thoone, Col. 23, lines 29-42; see also col. 5, line 55 – col. 6, line 3.

Second, MIT argues that Thoone does not describe how spoken discourse is composed and generated. MIT acknowledges that Thoone teaches delivery of instructions to the driver via a speech generator and a loudspeaker. MIT states, however, that the “Thoone patent provides little information regarding the generation of spoken instructions.” Call letter at 9. MIT’s conclusory arguments are inapposite. Thoone provides a detailed block diagram of the system in Figures 1 and 13. Thoone further provides detailed teachings as to what instructions should be provided, and how the instructions should be provided (aurally using speech generator 14 and loudspeaker 10). Thoone’s teachings are sufficiently detailed to enable one of ordinary skill in the art to program a computer to generate the discourse, and Thoone’s teachings read directly on the claims of the ’685 patent.

C. The Zeevi Patent

MIT proffers only two arguments as to why Zeevi does not invalidate the claims. Similar to MIT’s arguments with Streeter and Thoone, MIT argues first that Zeevi “does not disclose calculating a route from the current vehicle position produced by a position

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sensor to a driver-supplied destination location.” MIT is referring to one embodiment in Zeevi, which teaches driver input of the current vehicle position. However, MIT has failed to acknowledge that a second embodiment discloses a position sensor that produces the current vehicle position used for calculating the route. Specifically, Zeevi teaches that a new route may be calculated from a current position, produced by a position sensor, if the vehicle deviates from the determined route (*i.e.*, the vehicle is off course) or if the driver enters additional information about the journey (*e.g.*, traffic information, blocked roads, preferred road). Zeevi, Col. 13, lines 7-25; Col. 8, lines 42-49; Col. 14, line 66 – col. 15, line 15. In those instances, the Zeevi navigation system calculates a new route based on the current position (determined by the position sensors) and the input destination. Therefore, contrary to MIT’s assertion, Zeevi discloses calculating a route from the current vehicle position produced by a position sensor.

Second, MIT argues that Zeevi “fails to disclose a system of generating ‘discourse’ as disclosed and claimed in the Back Seat Driver Patent.” According to MIT, because Zeevi provides examples of commands, such as “left,” “right,” and “forward,” the Zeevi reference does not teach “discourse.” This argument is without merit. First, MIT’s definition of discourse is contrary to the ordinary meaning of the term “discourse,” the specification of the ’685 patent, and the claims of the ’685 patent. Second, Zeevi teaches providing discourse commands, even under MIT’s definition.

The ordinary meaning of the term disclosure is defined as “verbal expression in speech or writing.” American Heritage Dictionary. A command of “left” or “right” is

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clearly discourse under this ordinary meaning. Consistent with this definition, the '685 patent teaches that discourse may be as simple as a command to go "left" or "right":

Each act has a description function to generate a description of the action. The description function takes inputs specifying the size of the description (brief or long), the tense (past, present or future), and the reference position. A short description is the minimum necessary for the act. It is typically an imperative (e.g. "Bear left."). [Col. 15, lines 26-32.]

A brief description consists of only a verb phrase. The verb depends on the type of act. Besides the verb itself, the verb phrase must say which way to go. In most cases, the word "left" or "right" is sufficient. [Col. 15, lines 39-43.]

Finally, the claims of the '685 patent also define discourse as including a short command, such as a command to go left or right. *See, e.g.,* claim 45 ("The automobile navigation system of claim 1 **wherein said discourse generated comprises** a long description of an act given substantially before the act is to be performed and **a short description** given at the time the act is to be performed," emphasis added). Therefore, Zeevi's examples of "left," "right," and "forward" qualify as discourse as properly defined by the ordinary meaning and the intrinsic evidence of the '685 patent.

Finally, even if one were to adopt MIT's definition of discourse as complex spoken instructions, Zeevi still meets the limitation. Zeevi teaches that "[e]ach instruction will include guidance information and the name of the current street in which the vehicle is located." Zeevi, Col. 7, line 65-67. Zeevi further teaches that "the output means may function to provide a visual display, or to provide audible spoken information, or to provide both spoken information and the visual display." *Id.*, Col. 2, lines 30-33. When

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the output provides both spoken information and visual information, the spoken information is simpler, as cited in Mr. Call's letter. When the output is only audio, Zeevi teaches that complex instructions, including both guidance information and the name of the current street, may be provided orally. *Id.*, Col. 7, line 65-67. Therefore, Zeevi teaches discourse, under MIT's definition as well.

III. Inequitable Conduct

MIT's cursory and incomplete analysis of the prosecution irregularities surrounding the '685 patent reveal its vulnerability here. A patent is unenforceable on grounds of inequitable conduct if the patentee withheld material information from the PTO with intent to mislead or deceive the PTO into allowing the claims. *Critikon, Inc. v. Becton Dickinson Vascular Access*, 120 F.3d 1253, 1256 (Fed. Cir. 1997). When withheld information is highly material, a lower showing of deceptive intent is sufficient to establish inequitable conduct. *See American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1363 (Fed. Cir. 1984). Moreover, "direct proof of wrongful intent is rarely available but may be inferred from clear and convincing evidence of the surrounding circumstances." *Hewlett-Packard Co. v. Bausch & Lomb, Inc.*, 746 F. Supp. 1413, 1415 (N.D. Cal. 1990), *aff'd*, 925 F.2d 1480 (Fed. Cir. 1990). The conduct at issue must be viewed in light of all the evidence. *See Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc.*, 326 F.3d 1226, 1234 (Fed. Cir. 2003).

In this case, there is little doubt that Streeter and Thoone are highly material. Moreover, as MIT acknowledges, the inventors knew about Streeter and the previous

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work of Thoone; yet, the inventors chose not to submit either Streeter or Thoone to the PTO. Further, the inventors themselves credit Streeter as the basis of their work and yet mischaracterize the teachings of Streeter in the Thesis. Given that the references are: uncited to the PTO, admittedly highly material, and mischaracterized in the Thesis, the available evidence, even without formal discovery, shows that the patent likely was procured through inequitable conduct. *See, e.g., Critikon*, 120 F.3d at 1257. (“[A] patentee facing a high level of materiality and clear proof that it knew or should have known of that materiality, can expect to find it difficult to establish ‘subjective good faith’ sufficient to prevent the drawing of an inference of intent to mislead,” and hence, a ruling on inequitable conduct.).

IV. Conclusion

In December 2003, Harman made a *prima facie* showing that the '685 patent is invalid. Although appreciative that MIT prepared the legal analysis by Mr. Call in November 2004, the analysis misapplies the law and the facts. If anything, Mr. Call's opinion reinforces the invalidity of the '685 patent. Moreover, the facts supporting inequitable conduct further support invalidity. Based on the evidence of invalidity, MIT's positions on infringement, and the facts favoring inequitable conduct, it is difficult for Harman to engage in licensing discussions at this time.

Regards,



Meredith Martin Addy

cc: Robert Hart, Esq.
Enclosures
Appendix 1 and Appendix 2

Exhibit 14

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Email the Intellectual Property office through
our [Contact Us](#) page.

Exhibit 15



"Richelle Nessralla"
<rness@MIT.EDU>
03/31/2005 04:39 PM

To "Michelle Francis" <mfrancis@kirkland.com>
cc <jswope@palmerdodge.com>
Subject RE: Harman v. MIT

Thanks Michelle. I can confirm receipt. We are in agreement that MIT will file a responsive agreement on or before April 29.

-----Original Message-----

From: Michelle Francis [mailto:mfrancis@kirkland.com]
Sent: Thursday, March 31, 2005 5:36 PM
To: rness@MIT.EDU
Cc: jswope@palmerdodge.com
Subject: Harman v. MIT

Ms. Nessralla -

Here's an electronic copy of the summons and complaint that were faxed to you earlier today (per your counsel's instruction). The original is on its way to you via regular mail.

Regards,
Michelle Francis

(See attached file: Complaint.pdf)

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April 29, 2005

VIA FACSIMILE & FIRST CLASS MAIL

Steven M. Bauer, Esquire
Proskauer Rose LLP
One International Place, 14th Floor
Boston, MA 02110-2600


Re: *Harman Int'l Indus. Inc. v. MIT*, Case No. 05 C 1481

Dear Steve:

As you know, we previously agreed to extend the deadline for MIT's filing a responsive pleading to the Complaint until April 29, 2005. As we discussed yesterday and as confirmed to your voicemail today, Harman has authorized me to further extend the deadline for MIT to file its responsive pleading to the Complaint in this matter until Friday, May 6, 2005.

As a courtesy, we would appreciate receiving a copy of the pleading via facsimile to my attention.

Sincerely,



William A. Streff, Jr., P.C.

WAS/pm

cc: Robert P. Hart, Esquire (via facsimile)
Jeffrey Swope, Esquire (via facsimile)

04/29/2005 13:11 FAX 312 861 2200 2

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Robert P. Hart	Harman International Industries, Inc.	(818) 920-0677	(818) 895-3433
Jeffrey Swope	Palmer & Dodge LLP	(617) 227-4420	(617) 239-0100
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William A. Streff, Jr., P.C.	April 29, 2005	2	312 861-2200
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April 29, 2005

Sachnoff & Weaver 

VIA FACSIMILE & U.S. MAIL

William A. Streff, Jr.
Kirkland & Ellis LLP
200 East Randolph Drive
Chicago, IL 60601

Re: *Harman International Industries, Inc. v. Massachusetts Institute of Technology*
Case No.: 05 C 1481 (N.D. Ill.)

Dear Bill:

This letter is in response to your April 29, 2005 letter to Steven M. Bauer and the voicemail message you left me today concerning MIT's request for a two-week extension to answer or otherwise plead to the complaint. MIT appreciates the professional courtesy of the one-week extension, but due to the only recent retention of litigation counsel, MIT needs the full two weeks—until May 13, 2005—to file its response to the complaint. In your voicemail, you stated that it is too late in the day for you to reach your client in Germany to discuss the May 13 date, but that you could address it with Harman next week. You also stated that since your client had already agreed to the one-week extension, MIT need not file anything today. Please let us know Monday or early Tuesday, at the latest, if Harman will object to the May 13 response date. If there is an objection, MIT will want to get a motion on file promptly.

In response to your request, MIT agrees that it will serve its pleadings by fax to your attention, and requests that you serve Harman's pleadings by fax to Steve and me.

Very truly yours,



Brian D. Roche

BDR/kja

cc: Steven M. Bauer

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May 3, 2005

VIA FACSIMILE
BY FIRST CLASS MAIL

Brian D. Roche, Esquire
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Chicago, IL 60606-7507

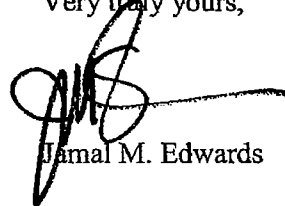
Re: *Harman Int'l Indus. Inc. v. Massachusetts Institute of Technology*
Case No: 05 C 1481

Dear Mr. Roche:

This letter responds to your April 29, 2005 letter to Bill Streff, requesting an additional extension for MIT to answer or otherwise plead in response to Harman's complaint. Your letter requested our response "early Tuesday, at the latest." After consulting with our client, I am pleased to report that Harman will grant a third extension for MIT to answer or otherwise plead on before Friday, May 13, 2005.

We also acknowledge your agreement that Harman and MIT will serve their respective pleadings on the other by facsimile to Mr. Streff (for Harman) and to Mr. Bauer and yourself (for MIT).

Very truly yours,



Jamal M. Edwards

cc: Robert P. Hart, Esquire
Steven M. Bauer, Esquire

05/03/05 TUE 11:01 FAX 312 861 2200 53

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Brian D. Roche, Esq.	Sachnoff & Weaver, Ltd.	(312) 207-6400	(312) 207-6490	
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From:	Date:	Pages w/cover:	Fax #:	Direct #:
Jamal M. Edwards	May 3, 2005	2	(312) 660-0719	(312) 861-2464
Message:				

Exhibit 16

1988 WL 107345
 1988 WL 107345 (N.D.Ill.)
 (Cite as: 1988 WL 107345 (N.D.Ill.))

Page 1

Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
 Division.

Dennis OPATKIEWICZ, d/b/a Chicago Crane &
 Machinery Company, Plaintiff,

v.

KEFFLER CONSTRUCTION COMPANY, INC.,
 Defendant.

No. 88 C 6077.

Oct. 7, 1988.

MEMORANDUM OPINION AND ORDER

WILLIAM T. HART, District Judge.

*1 This diversity case is here on defendant's motion to dismiss for improper venue. [FN1] For the reasons indicated below, the motion is denied.

DISCUSSION

This is a contract dispute between plaintiff, Chicago Crane & Machinery Co., and defendant, Keffler Construction Co., Inc. Plaintiff is an Illinois corporation with its principal place of business in the Northern District of Illinois. Defendant is incorporated and has its principal place of business in Ohio. The sole basis for jurisdiction is diversity.

The dispute is straightforward: defendant sold plaintiff a crane for \$150,000. Plaintiff alleges that, contrary to defendant's representation, the crane had a lien on it. Plaintiff had to pay \$125,000 to release the lien. Count I of its two-count complaint seeks to recover expenses; Count II asks for an award of punitive damages. Defendant filed this motion to dismiss September 20, 1988.

A. Section 1391(a)

Since this is a diversity action, venue is governed by 28 U.S.C. § 1391(a). That provision reads:

A civil action wherein jurisdiction is founded only on diversity of citizenship may, except as otherwise provided by law, be brought only in the judicial district where all the plaintiffs or all the defendants reside, or in which the claim arose.

Plaintiff resides in this district, so venue is proper under § 1391(a).

In response, defendant contends that neither it nor this dispute have any connection to this district. For instance, defendant claims it has no office, bank account, or agent in Illinois, that the crane had always been in Ohio, and that the sale was made in Ohio. These contentions, however, have no relevancy to § 1391(a). Though they may bear on whether the claim arose in this district, § 1391(a) is written in the alternative: venue is proper where the plaintiff or defendant resides *or* where the claim arose. Because plaintiff resides here, venue is proper.

B. Section 1404(a) Transfer

Though defendant does not raise the argument explicitly, its claim could be considered a motion to transfer pursuant to 28 U.S.C. § 1404(a). This section allows the court to transfer a case when a transfer serves the interests of justice and the convenience of the parties. The burden, however, is on the movant, *Waites v. First Energy Leasing Corp.*, 605 F.Supp. 219, 221 (N.D.Ill.1985), and the motion will be denied when transfer merely shifts inconvenience from one party to another. *Countryman v. Stein Roe & Farnham*, 681 F.Supp. 479, 482 (N.D.Ill.1987).

Defendant has not met its burden under § 1404(a). It candidly concedes that plaintiff and plaintiff's supporting witnesses are in Illinois, and that it--defendant--does not know what other witnesses will be called at trial. Defendant has not alleged that the documents relevant to this dispute are in Ohio, or that the amount of documentary evidence is so great that trial in Illinois would be unduly burdensome. Indeed, because discovery has not begun, defendant insists that it cannot know this information--as if its ignorance would improve the motion.

*2 In sum, all defendant alleges at this time is that trial in Illinois is inconvenient. Section 1404(a) cannot be used simply to shift inconvenience.

C. Personal Jurisdiction

Finally, in one paragraph, defendant suggests that this court lacks personal jurisdiction over the defendant. The motion, however, challenged venue (presumably Rule 12(b)(3)) and not personal jurisdiction (Rule 12(b)(2)). Plaintiff did not respond to the jurisdiction issue.

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(Cite as: 1988 WL 107345, *2 (N.D.Ill.))

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Even treating the motion as a Rule 12(b)(2) claim, defendant has not properly presented the question.

If the defendant thinks the court lacks personal jurisdiction, his proper course is to request an evidentiary hearing on the issue. Of course, he can and should support the request with affidavits or other documents that might obviate the need for oral testimony....

Crawford v. United States, 796 F.2d 924, 928 (7th Cir.1986). See also *Time Share Vacation Club v. Atlantic Resorts, Ltd.*, 735 F.2d 61, 66 (3d Cir.1984); *Nelson by Carson v. Park Industries*, 717 F.2d 1120, 1123 (7th Cir.1983). Defendant has neither requested a hearing nor submitted affidavits. The court has only defendant's unsupported allegations, and on this record cannot decide the personal jurisdiction question. [FN2]

IT IS THEREFORE ORDERED that:

(1) Defendant's motion to dismiss for improper venue or for want of personal jurisdiction is denied.

(2) Defendant is ordered to answer the complaint within fourteen days.

(3) A status hearing is set for November 8, 1988 at 9:15 a.m.

FN1. Defendant brings this motion under Fed.R.Civ.P. 12, but does not specify which section. However, defendant entitled it a "Motion to Dismiss for Improper Venue", and 12(b)(3) applies to venue. Defendant also seems to argue lack of personal jurisdiction, which is the subject of a 12(b)(2) motion. Both venue and personal jurisdiction are discussed in this opinion.

FN2. Under the Rules, a defendant waives the defense of lack of personal jurisdiction if he fails to raise it when he challenges venue. Fed.R.Civ.P. 12(g); 12(h)(1). In this case, however, defendant has not waived the defense. It raised the question of personal jurisdiction-- albeit improperly--and this court considered it.

1988 WL 107345 (N.D.Ill.)

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 (Cite as: 1995 WL 27398 (N.D.Ill.))

Page 1

C

Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
 Division.

CHICAGO HEIGHTS STEEL, Plaintiff,

v.

RAPID ENGINEERING, INC., Defendant.

RAPID ENGINEERING, INC., Third-Party Plaintiff,

v.

MAGHIELSE AUTOMATION, INC., Third-Party
 Defendant.

No. 94 C 3579.

Jan. 23, 1995.

MEMORANDUM OPINION AND ORDER

PLUNKETT, District Judge.

*1 Plaintiff Chicago Heights Steel ("CHS") sued defendant Rapid Engineering, Inc., ("REI") for breach of contract, among other things, in this diversity action; REI, in turn, sued third-party defendant Maghielse Automation, Inc. ("Maghielse"). Maghielse has moved to dismiss for lack of personal jurisdiction or, alternatively, to stay. REI supports the motion to stay but opposes the motion to dismiss; CHS opposes both.

The identical parties are involved in litigation based on identical claims in the United States District Court for the Western District of Michigan. There, REI sued CHS and Maghielse; CHS counterclaimed. That case was originally filed on June 1, 1994, in state court; this case was filed on June 9, 1994. CHS removed the Michigan case to federal court on July 8, 1994. There, the parties have filed responsive pleadings, and no one is contesting jurisdiction.

Two identical lawsuits should not proceed in federal courts in different districts, for that would be a monumental waste of the courts' and the parties' resources and would open the door to inconsistent judgments. The only question is whether this action or the Michigan one should take precedence. The "first-to-file" rule dictates that it should be the

Michigan case. "[W]here there are two competing lawsuits, the first suit should have priority, absent the showing of balance of convenience ... or ... special circumstances ... giving priority to the second." *Adam v. Jacobs*, 950 F.2d 89, 92 (2d Cir.1991) (quoting *First City Nat'l Bank and Trust Co. v. Simmons*, 878 F.2d 76, 79 (2d Cir.1989)). Here, neither the balance of convenience nor special circumstances require us to give precedence to this case.

CHS asserts that REI filed the Michigan action in anticipation of litigation, in bad faith (because settlement negotiations were ongoing), and in an effort to forum shop. Both REI and CHS engaged in a race to the courthouse. REI filed on June 1, one day before a scheduled settlement conference, at which it did not disclose its lawsuit. CHS filed on June 9, one day before the next settlement conference, which it cancelled by announcing the filing of its suit. Each served the other on June 11 (when CHS first learned of REI's suit). Obviously, both REI and CHS tried to use the settlement discussions to get a jump on the other by filing their lawsuits *before* the conferences were held. However, the "plaintiff bears the burden of demonstrating any special circumstances justifying an exception to the ["first-to-file"] rule." *800-Flowers, Inc. v. Intercontinental Florist, Inc.*, 860 F.Supp. 128, 132 (S.D.N.Y.1994). Since REI's and CHS' conduct was equally inequitable, CHS has not met its burden of showing that a special circumstance exists.

While Maghielse and REI have asked for a stay, we can see no reason why we should not dismiss this case without prejudice. Since the claims in the Michigan case are identical, once that case is resolved, there will be nothing left to litigate here.

*2 We dismiss this case without prejudice because there is an identical lawsuit pending in the United States District Court for the Western District of Michigan, which was filed first. We deny as moot Maghielse's motion to dismiss for lack of personal jurisdiction or, alternatively, to stay.

Motions, Pleadings and Filings (Back to top)

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(Cite as: 1995 WL 27398 (N.D.Ill.))

(Jun. 09, 1994)

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 (Cite as: 2000 WL 777895 (S.D.Ind.))

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Only the Westlaw citation is currently available.

United States District Court, S.D. Indiana,
 Indianapolis Division.

INDIANAPOLIS MOTOR SPEEDWAY
 Corporation, Plaintiff,

v.

POLARIS INDUSTRIES INC, and Greenfield Motor
 Sports LLC, Defendants.
 No. IP 99-1190-C-B/S.

April 28, 2000.

Jay G. Taylor, Ice, Miller, Donadio & Ryan,
 Indianapolis, IN.

David K. Callahan, Kirkland & Ellis, Chicago, IL.

James W. Riley Jr., James Riley Jr., Riley, Bennet &
 Egloff, Indianapolis, IN.

ENTRY GRANTING DEFENDANTS' MOTION TO TRANSFER AND DENYING MOTION TO DISMISS

BARKER.

*1 Plaintiff, Indianapolis Motor Speedway Corporation ("IMSC"), filed suit alleging that Defendants, Polaris Industries, Inc. ("Polaris") and Greenfield Motor Sports, LLC ("Greenfield"), have infringed upon various IMSC registered trademarks. Defendants responded by filing a motion to dismiss or stay these proceedings in favor of Polaris' previously-filed action seeking declaratory relief, currently pending in the District of Minnesota, or in the alternative to transfer this action to the federal district court in Minnesota, pursuant to 28 U.S.C. § 1404(a). For the reasons discussed below, we GRANT Defendants' alternative motion to transfer IMSC's Complaint to the District of Minnesota.

Background

Polaris, a leading manufacturer of snowmobiles and other recreational vehicles, began to manufacture, market, and sell snowmobiles under various INDY trademarks in 1979. See Brief in Support of Defendants' Motion to Dismiss or Transfer the Complaint ("Defs.' Br.") at 2. IMSC owns the rights to the registered "INDY 500" trademark. See

Plaintiff's Response in Opposition to Defendants' Motion to Dismiss or Transfer the Complaint ("IMSC Resp.") at 3. It is undisputed that IMSC contacted Polaris in November, 1998, demanding that Polaris cease and desist from using the INDY 500 mark. See Compl. ¶ 24. Conversations ensued between counsel for the two parties, during which IMSC demanded that Polaris either cease using the INDY mark or take a license from IMSC. See *id.*

Polaris' former counsel wrote IMSC on February 23, 1999, denying IMSC's allegations and claiming that IMSC was barred from raising any legal claims against it. See Defs.' Br. at 3. IMSC contends that the parties had further discussions in March and that Polaris discontinued those discussions sometime in April, 1999. See IMSC Resp. at 4. It is undisputed that Polaris filed an action in the District Court of Minnesota on May 7, 1999, seeking a declaration that it had the right to use the INDY mark and that such mark did not violate any of IMSC's legal rights. See IMSC Resp. at 4; Defs.' Br. at 3. Polaris did not serve IMSC with that complaint until August 23, 1999, although that date was within the 120 days allowed by Federal Rule of Civil Procedure 4. See Defs.' Br. at 3; IMSC Resp. at 2; Fed.R.Civ.P. 4(m).

Meanwhile, IMSC filed the instant action with us on August 2, 1999, and served the complaint upon Polaris and Greenfield by August 5, 1999. See IMSC Resp. at 1. IMSC seeks damages and injunctive relief for the Defendants' alleged trademark infringement, trademark dilution, common law, unfair competition. See Compl. Each of IMSC's allegations arises out of Polaris' alleged infringement of IMSC's registered "INDY" and "INDY 500" trademarks.

Discussion

A. Motion to Dismiss or Stay the Action

There is a strong legal presumption against having related actions pending simultaneously in different courts. "As a general rule, a federal suit may be dismissed 'for reasons of wise judicial administration ... whenever it is duplicative of a parallel action already pending in another federal court.'" *Serlin v. Arthur Anderson & Co.*, 3 F.3d 221, 223 (7th Cir.1993) (quoting *Ridge Gold Standard Liquors, Inc. v. Joseph E. Seagram & Sons, Inc.*, 572 F.Supp. 1210, 1213 (N.D.Ill.1983) (citing *Colorado River Water Conservation Dist. v. United States*, 424 U.S.

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800, 817 (1976))). A suit is considered duplicative "if the claims, parties, and available relief do not significantly differ between the two actions." Serlin, 3 F.3d at 223.

*2 However, the Seventh Circuit does not espouse a rigid "first-to-file" rule. See Tempco Elec. Heater Corp. v. Omega Eng'g, Inc., 819 F.2d 746, 750 (7th Cir.1987). To do so would simply encourage "an unseemly race to the courthouse." *Id.* Instead, there is a rebuttable presumption that the first case should be allowed to proceed and the second case abated. See Asset Allocation and Management Co. v. Western Employers Ins. Co., 892 F.2d 566, 573 (7th Cir.1989). This first-to-file rule gives priority, for purposes of venue selection, to the party who first establishes jurisdiction, see Northwest Airlines, Inc. v. American Airlines, Inc., 989 F.2d 1002, 1004 (8th Cir.1993); Asset Allocation, 892 F.2d at 572, while recognizing that the rule "yields to the interest of justice." See Applexion S.A. v. Amalgamated Sugar Co., No. 95-C-858, 1995 WL 404843, at *2 (N.D.Ill. July 7, 1995) (citing Asset Allocation, 892 F.2d at 572-73). Thus, the plaintiff bears the burden of showing any compelling circumstance or an imbalance of convenience to overcome the presumption that the second-filed case should be dismissed in favor of the case filed first. See Central States, Southeast and Southwest Areas Pension Fund v. Paramount Liquor Co., 34 F.Supp.2d 1092, 1094 (N.D.Ill.1999), *app. dismissed*, 203 F.3d 442 (7th Cir.2000); Applexion, 1995 WL 404843, at *2. Such circumstances include a showing: that the plaintiff in the first-filed action raced to the courthouse to avoid litigating in another forum, see Tempco Elec. Heater Corp., 819 F.2d at 750; that the plaintiff in the second-filed action may not be able to obtain jurisdiction over an indispensable defendant in the forum of the first-filed action, see Asset Allocation, 892 F.2d at 573; that the first-filed action is trivial in relation to the second-filed action, see *id.*; that the second-filed action has developed further than the first-filed action, see Applexion, 1995 WL 404843, at *2; or that the first-filed action was brought in bad faith, see *id.*

These scenarios are frequently seen in cases involving allegations of trademark infringement: one party has an interest in filing suit to protect its registered trademark while the other party has an interest in obtaining a declaratory judgment, pursuant to 28 U.S.C. § § 2201-2202, that its actions do not infringe upon any trademark. The purpose of a declaratory judgment is to "clarify and settle the legal relations at issue and to terminate and afford

relief from the uncertainty, insecurity, and controversy giving rise to the proceeding." Tempco Elec. Heater Corp., 819 F.2d at 749 (quoting BORCHARD, DECLARATORY JUDGMENTS 299 (2d ed.1941)). One set of facts that properly gives rise to a declaratory judgment is where the "controversy has ripened to a point where one of the parties could invoke a coercive remedy (i.e. a suit for damages or an injunction) but has not done so...." *Id.* However, the "wholesome purpose of declaratory acts would be aborted" if courts allow its use as an "instrument of procedural fencing ... to secure a forum." *Id.* at 750. Therefore, we must be wary of declaratory judgment actions filed as a "preemptive strike."

*3 Before we apply these standards to the facts before us, we address IMSC's contention that the first-to-file rule is, in reality, the "first-to-file and serve rule," under which, this action would in fact be the "first-filed" action and would presumably be allowed to proceed. See IMSC Resp. at 5-7. Contrary to IMSC's arguments, the date the complaint was served does not impact the determination of which case was filed first. Although we find no Seventh Circuit precedent directly on point, courts in other circuits faced with this contention have overwhelmingly held that the date of service has no bearing upon a determination of which case was filed first. See Pacesetter Sys. Inc. v. Medtronic, Inc., 678 F.2d 93, 96 n. 3 (9th Cir.1982); Med-Tec Iowa, Inc. v. Nomos Corp., 76 F.Supp.2d 962, 970 (N.D.Iowa 1999) (collecting cases); Fat Possum Records, Ltd v. Capricorn Records, Inc., 909 F.Supp. 442, 446 (N.D.Miss.1995); Peregrine Corp. v. Peregrine Indus., Inc., 769 F.Supp. 169, 172 (E.D.Pa.1991). Such reasoning is consistent with the Federal Rules of Civil Procedure, see Fed.R.Civ.P. 3 ("A civil action is commenced by filing a complaint with the court."), as well as decisions in other contexts. Cf. Rodgers ex rel. Jones v. Brown, 790 F.2d 1550, 1551 (11th Cir.1986) (holding action is commenced within judicial review provision of Social Security Act when complaint is filed with the court); Farmers Alliance Mut. Ins. Co. v. Jones, 570 F.2d 1384, 1386 (10th Cir.1978) (deeming action to have commenced at filing of complaint for purpose of determining whether a justiciable controversy exists); Dewev v. Farchone, 460 F.2d 1338, 1340 (7th Cir.1972) (noting that under both Illinois and federal law, a lawsuit is commenced with the filing of a complaint); Donovan v. Tony and Susan Alamo Found., 567 F.Supp. 556, 573 (W.D.Ark.1982), *aff'd on other grounds*, 722 F.2d 397 (8th Cir.1983), *aff'd*, 471 U.S. 290 (1985) (holding action commenced when

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complaint filed for purpose of relief under the Fair Labor Standards Act). This does not mean that a lengthy delay between filing a complaint and service of that complaint on the defendant is irrelevant to our analysis; however, it is properly considered only as a possible "compelling circumstance" that may or may not dictate rebutting the presumption in favor of the first-filed suit.

Turning to those circumstances, we find that IMSC has not carried its burden to show such circumstances exist in this case. [FN1] The facts surrounding Polaris' commencement of the Minnesota action do not indicate that it was made in bad faith or intended as a preemptive strike. IMSC informed Polaris in November, 1998, that it considered Polaris to have infringed upon IMSC's registered trademarks and demanded that Polaris cease using the offending terms. See IMSC Resp. at 4. The parties then engaged in several months of negotiations and discussions culminating in Polaris' declaration to IMSC that it did not consider itself in violation of any of IMSC's protected rights. Polaris broke off discussions sometime in April, 1999. It was not until May, 1999, six months after IMSC's initial communication and several weeks to a month after negotiations had broken down, that Polaris finally filed suit in Minnesota. Such action by Polaris is clearly contemplated by the declaratory judgment act. The dispute between Polaris and IMSC was ripe for resolution, IMSC's cause of action had accrued, and Polaris filed suit in Minnesota to "clarify and settle the legal relations at issue" and to "terminate and afford relief from the uncertainty, insecurity, and controversy giving rise to the proceeding."

[FN1]. There does not appear to be any dispute that the two actions are duplicative. Polaris affirmatively makes such an argument, while IMSC appears to assume this assertion. Compare Defs.' Br. at 4-5 with IMSC Resp. at 7. Clearly, the substantive issues involved in the two suits are substantially, if not entirely, identical. Polaris seeks a declaratory judgment that its manufacturing, marketing, and selling of its snowmobiles does not infringe upon IMSC's "INDY 500" or "INDY" trademarks, the instant action seeks damages and injunctive relief arising from that same activity. Moreover, the principal parties are the same in each suit: IMSC and Polaris. Greenfield's addition as a defendant in our case is immaterial to our determination that the suits are duplicative. See *Asset Allocation*,

892 F.2d at 574; *Applexion*, 1995 WL 404843, at *3, *4 n. 2.

*4 Unlike those cases that have found that the party seeking a declaratory judgment preempted the party asserting the trademark rights, Polaris' actions did not come on the heels of IMSC's assertion of right or in secret while Polaris tried to continue discussions about the offending acts. See *Tempco*, 819 F.2d at 747, 749 (holding that a declaratory judgment filed by the alleged infringer the same day that the registrant sent the infringer a letter stating its intent to file an action for infringement was "filed in anticipation of [the] infringement action"); *Galileo Int'l Partnership v. Global Village Communication, Inc.*, No. 96-C-3354, 1996 WL 452273, at *3 (N.D.Ill. Aug. 8, 1996) (finding declaratory action an abuse of the declaratory act when it was filed the same day the alleged infringer was to respond to the registrant's letter seeking cessation of the use of the registrant's trademark); *Federal Signal Corp. v. Public Safety Equipment, Inc.*, No. 91-C-0493, 1991 WL 128634, at *2 (N.D.Ill. July 11, 1991) (dismissing declaratory action filed by alleged infringer the same day it sent a letter to the registrant expressing desire to settle matter amicably). Polaris and IMSC engaged in discussions over a period of several months before Polaris filed its lawsuit in Minnesota. Polaris had broken off communications with IMSC in the month before filing the suit. IMSC's cause of action had accrued and Polaris should not be required to wait indefinitely while IMSC decides whether to seek a legal remedy. A determination that Polaris' action was "preemptory" would effectively eviscerate the ability to seek a declaratory judgment in the exact set of circumstances in which *Tempco* held that one was appropriate.

It is important to note that this case and the facts of *Tempco* differ in one important respect. In *Tempco*, the district court and Seventh Circuit were faced with the decision to dismiss or stay a declaratory action currently pending *before that court* in favor of an infringement action filed *before* another court. See *Tempco*, 819 F.2d at 747. Polaris' declaratory action is before the District of Minnesota; the case before us is IMSC's infringement action. "[T]he overriding principle of [*Associated Mills v. Regina Co.*, 675 F.Supp. 446 (N.D.Ill.1987)] and *Tempco*--that a federal court may decline to hear a declaratory judgment action even though it is within the court's jurisdiction to do so--does not apply" where the declaratory action is not pending before the court and it is instead being asked to dismiss or stay a later-

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filed infringement action. Koos, Inc. v. Performance Indus., Inc., 747 F.Supp. 487, 492 (N.D.Ill.1990); accord Black and Decker Corp. v. Vermont American Corp., 915 F.Supp. 933, 937 (N.D.Ill.1995). [FN2] Thus, while IMSC cites *Tempco* as support for its argument that the "Seventh Circuit particularly disfavors preemptive suits in actions involving interests in intellectual property," IMSC Resp. at 7 (emphasis added), the facts before us distinguish *Tempco* and limit its persuasive force: Polaris' action in seeking a declaratory judgment was not preemptory and even if we disfavored all declaratory judgments, we do not have the authority to make dispositive rulings on a case pending in Minnesota. See Black and Decker Corp., 915 F.Supp. at 937. IMSC has not established that Polaris' filing in Minnesota was a preemptory strike.

[FN2]. The other case that IMSC claims directs a result in its favor is Anheuser-Busch, Inc. v. Supreme Int'l Corp., 167 F.3d 417 (8th Cir.1999). Like *Tempco*, the case pending before the Eighth Circuit in *Anheuser-Busch, Inc.* was a declaratory judgment action filed by the alleged infringer. See *id.* at 418-19. Also, like *Tempco*, *Anheuser-Busch, Inc.* involved an alleged infringer who filed the action seeking a declaratory judgment in the Eastern District of Missouri within days after the registrant had sent a letter to the alleged infringer informing it that the registrant was planning to file its own suit if a resolution was not reached. See *id.* at 419. The Eighth Circuit highlighted the fact that the timing of the alleged infringer's action indicated that the filing of the action in Missouri was Anheuser-Busch's attempt to "race[] to the courthouse to usurp Supreme's forum choice." *Id.* Under these circumstances, the Eighth Circuit held that the district court in Missouri had not abused its discretion when it dismissed the first-filed declaratory action in favor of the second-filed infringement action. See *id.* The facts of the instant case are easily distinguishable and *Anheuser-Busch, Inc.* no more directs our result than *Tempco* does.

*5 Next, IMSC claims that this case has progressed further than the first-filed Minnesota action. See Applexion, 1995 WL 404843, at *2. The evidence indicates this claim to be untrue. Both the District of Minnesota and this court are considering motions to dismiss. It is not clear what the relative status is of

the discovery process in the two cases; however, both seem to be progressing at a similar pace. IMSC has not established that the action in this court has proceeded so much further than the Minnesota action as to rebut the presumption in favor of proceeding with the Minnesota action.

We also do not feel that the delay between the filing of the Minnesota action and service of the complaint upon IMSC warrants defeat of the presumption. Defendants contend that IMSC had notice of the Minnesota action, despite the fact they had not yet been served the complaint. See Defs.' Br. at 8. IMSC fails to rebut this assertion; thus we assume that it is true for the purpose of this motion. Notice of the declaratory judgment action eliminates any harm IMSC might have suffered due to surprise. See Pacesetter Sys., Inc., 678 F.2d at 96 n. 3; Fat Possum, 909 F.Supp. at 446. Such knowledge on the part of IMSC when it filed the infringement action in our court casts IMSC's actions in a different light. Arguably, IMSC is the party who filed this suit to control the choice of venue, even though it knew a duplicative action was pending in another jurisdiction. We cannot condone a blatant attempt to control venue by ruling that a delay in service of the complaint alone provides a compelling reason to subjugate a previously-filed declaratory judgment action, especially when service occurred within the time frame allowed by Federal Rule of Civil Procedure 4(m).

Finally, the inclusion of Greenfield as a defendant in this action does not provide a compelling reason to defeat the presumption in favor of Polaris' previously-filed action in Minnesota. As a dealer of Polaris snowmobiles, Greenfield is a co-conspirator of Polaris and is not an indispensable or essential party, under Rule 19(a), in the prosecution of an infringement action. See Harley-Davidson Motor Co. v. Chrome Specialties, Inc., 173 F.R.D. 250, 253 (E.D.Wis.1997) (citing Lawlor v. National Screen Serv. Corp., 349 U.S. 322, 329-30 (1955); 7 CHARLES ALAN WRIGHT, ARTHUR R. MILLER & MARY KAY KANE, FEDERAL PRACTICE AND PROCEDURE § 1623, at 346-47 (1986)). Since Greenfield is not an indispensable party to the infringement action, its exclusion from such an action would not prevent IMSC from pursuing the patent infringement against Polaris in Minnesota and obtaining complete relief without Greenfield's participation. See *id.* Thus, IMSC could bring the infringement claim against Polaris as a compulsory counter-claim in Minnesota, pursuant to Federal Rule of Civil Procedure 13(a), and Greenfield's presence

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as a defendant in this action is an insufficient basis to warrant a departure from the first-to-file rule.

*6 Having examined each of the potential "compelling reasons" which IMSC asserts to justify a variance from the presumption in favor of the first-filed declaratory judgment action in Minnesota, we find none of them sufficient. Accordingly, under our inherent power to manage our docket, we hold that IMSC's duplicative lawsuit is deserving of dismissal in favor of the declaratory judgment action currently pending in the District of Minnesota, Docket No. 99CV713.

B. Motion to Transfer the Action to the District of Minnesota

As an alternative, Defendants seek to transfer this action to Minnesota, pursuant to 28 U.S.C. § 1404(a). Such a motion concedes that venue properly lies in both the transferor and transferee districts but argues that transfer will save the parties, witnesses and public unnecessary inconvenience and expense. See *Black and Decker Corp.*, 915 F.Supp. at 936 (citing *Continental Grain Co. v. The FBL-585*, 364 U.S. 19, 26 (1960)). The movant bears the burden of establishing that the transferee forum is clearly more convenient, considering the factors listed in § 1404(a). See *Coffey v. Van Dorn Iron Works*, 796 F.2d 217, 219 (7th Cir.1986); *Black and Decker Corp.*, 915 F.Supp. at 936; *Koos*, 747 F.Supp. at 490.

Defendants discuss all of these factors in their brief and IMSC's only objection appears to be that transfer is inappropriate because the District of Minnesota does not have jurisdiction over one of the defendants in this case, Greenfield. See Defs.' Br. at 9-12; IMSC Resp. at 10-11. We have already determined that Greenfield is not an essential party to IMSC's prosecution of a trademark infringement case against Polaris. See *supra*. Since Greenfield is not an essential party, the fact that the District of Minnesota may not have jurisdiction over it will not preclude transfer under § 1404(a). See *Harley-Davidson Motor Co.*, 173 F.R.D. at 253. Moreover, we are of the opinion that Greenfield was likely added as a defendant for the very purpose of attempting to thwart transfer to Minnesota. IMSC alleges nationwide infringement of its trademarks, yet chose to include only Greenfield as a defendant. See Compl. ¶ 21. IMSC's allegations indicate that it could obtain full relief by pursuing an infringement action either solely against Polaris or by including a Minnesota dealer in Greenfield's place. Further, Greenfield has agreed to submit to jurisdiction in

Minnesota, should IMSC feel it necessary to include Greenfield as a third-party defendant in that action. See Defs.' Br. at 3 n. 3. These factors lead us to conclude that transfer, pursuant to § 1404(a), is not foreclosed by Greenfield's presence in this suit.

Accordingly, we hold that Polaris has established that the § 1404(a) factors favor transfer to Minnesota. Polaris' headquarters and principals are in Minnesota, as is the site of the snowmobile manufacturing and advertisement campaigns. See Defs.' Br. at 9-10. In fact, IMSC has already begun seeking information from third-party witnesses in Minnesota. See *id.* at 10. Finally, the traditional notions of judicial economy encompassed by § 1404(a) overwhelmingly point toward transfer to Minnesota. Polaris has significant contacts with Minnesota, IMSC's infringement claim can be prosecuted in Minnesota as a compulsory counterclaim to the previously-filed Minnesota declaratory action, pursuant to Rule 13(a), and there is no real difference from a time perspective between obtaining a resolution in Minnesota versus obtaining one from us. See *id.* at 11. The District of Minnesota is clearly the more convenient forum for IMSC's infringement action and transfer, pursuant to § 1404(a), is appropriate here.

C. Remedy

*7 Having found that dismissal is warranted under the first-to-file rule and that transfer is also warranted, under § 1404(a), we are left to choose which remedy is most appropriate under the circumstances. As a practical matter, dismissal and transfer have the same substantive effect: IMSC is precluded from obtaining relief in our district and must bring its infringement claim in Minnesota, if at all. See *Harley-Davidson Motor Co.*, 173 F.R.D. at 254; *Fat Possum Records, Ltd.*, 909 F.Supp. at 447. The only other effect of our ruling is IMSC's ability to join Greenfield as a defendant to the infringement claim, if it so chooses. It is not clear that IMSC would be able to obtain jurisdiction over Greenfield in Minnesota if this action were dismissed. However, Greenfield has agreed to submit to Minnesota's jurisdiction if we were to transfer this action. See Defs.' Br. at 3 n. 3. Thus, because the two remedies have the same effect on IMSC and transfer assures that IMSC will be able to join Greenfield, we will exercise our discretion by transferring this action, pursuant to § 1404(a), to the District of Minnesota.

Conclusion

For the reasons discussed above, Defendants' motion

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to transfer IMSC's complaint to the District of Minnesota, pursuant to § 1404(a), is *GRANTED*. Defendants alternative motion to either dismiss or stay the action is *DENIED* as moot.

It is so ORDERED this ___ day of June 2000.

2000 WL 777895 (S.D.Ind.)

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Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
 Division.

PHOTOGEN, INC., Plaintiff,

v.

Gerald L. WOLF and the General Hospital Corp.,
 Defendants.

No. 00 C 5841.

May 7, 2001.

MEMORANDUM OPINION AND ORDER

MORAN, Senior J.

*1 This case involves a dispute between a research physician, the hospital where he worked and a biotechnology company that sponsored his research. Plaintiff Photogen, Inc. filed a six-count amended complaint against defendants Dr. Gerald L. Wolf and General Hospital Corp., d/b/a Massachusetts General Hospital (MGH), alleging breach of contract, misappropriation of trade secrets, conversion, and breach of fiduciary duty. Plaintiff also seeks declaratory judgments that it did not breach one of the contracts, and exclusively owns certain inventions. Wolf moves to dismiss for lack of venue, or, alternatively, to transfer this case to the District of Massachusetts. Wolf further moves to dismiss counts five and six on subject matter jurisdiction grounds. For the following reasons, the motion to dismiss for lack of venue is denied, the motion for transfer is denied, and the motion to dismiss counts five and six is granted.

BACKGROUND

Photogen is a Tennessee corporation, based in Knoxville. It also operates a facility in Westborough, Massachusetts. MGH is a Massachusetts corporation, with a primary place of business in Boston. Wolf is an individual, residing in Massachusetts.

Wolf was originally employed by MGH. Beginning in 1998, Photogen agreed to sponsor a research project at MGH, with Wolf as the principal investigator. At various times this relationship was

defined by three contracts, included as exhibits to the complaint: (A) a Confidential Disclosure Agreement (CDA), effective July 7, 1998; (B) a Research Agreement, effective October 12, 1998; and (C) an Employment Agreement, effective July 1, 1999. Neither the CDA nor the employment agreement contains a forum selection clause. The research agreement, however, included a provision selecting state or federal courts in Chicago as the exclusive fora for disputes relating to that contract. Wolf, as the principal investigator, joined in this agreement. Photogen eventually hired Wolf as its own employee, pursuant to the employment agreement.

Throughout this research project Wolf made several presentations to Photogen's board of directors in Chicago. At one of these meetings he claimed he had invented certain discoveries that Photogen maintains are its own, and indicated he intended to publish his findings. He further claimed that the CDA did not apply to him and that Photogen had breached it.

DISCUSSION

I. Subject Matter Jurisdiction

Count five seeks a declaration that Photogen did not breach the CDA. Wolf counters that the court does not have jurisdiction over this claim because there is no actual controversy. "The existence of an actual controversy is an absolute predicate for declaratory judgment jurisdiction." *Spectronics Corp. v. H.B. Fuller Co.*, 940 F.2d 631, 633-34 (Fed.Cir.1991).

To create an actual controversy for declaratory relief the plaintiff must have a reasonable apprehension of being sued. *See Fina Oil and Chem. Co. v. Ewen*, 123 F.3d 1466, 1470 (Fed.Cir.1997). The parties to the CDA were MGH and Photogen. Wolf signed the agreement and agreed to be bound by MGH's obligations, but did not necessarily assume all of MGH's rights. There is nothing in the document to suggest that Wolf had any right to sue individually on the contract. If Wolf has no right to bring suit against Photogen, plaintiffs cannot reasonably apprehend a suit based exclusively on his statements. *See Chou v. University of Chicago*, 2000 WL 222638 at *2 (N.D.Ill. Feb. 22, 2000). Moreover, plaintiff has not alleged that MGH

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threatened any action against Photogen. Statements by an employee, unless actually or apparently empowered to initiate suit on the employer's behalf, do not create an actual controversy. See *Sherman Treaters, Ltd. v. Ahlbrandt*, 607 F.Supp. 939, 943 (D.D.C.1985) (conduct by licensee not imputed to patentee), citing *Dr. Beck & Co. v. General Elec. Co.*, 317 F.2d 538, 539 (2d Cir.1963) (statement by defendant's employee not imputed to employer). As discussed above, the CDA does not give Wolf such apparent authority. Plaintiff has alleged nothing more than that Wolf was an MGH employee when he leveled his charges. This is insufficient to create an actual controversy.

*2 Count six seeks a declaration that Photogen is the sole inventor of certain products for which patents are pending, and the sole owner of any intellectual property rights which may issue. We do not know what if any rights the Patent and Trademark Office (PTO) will confer on plaintiff. We may not declare ownership of hypothetical rights. See *GAF Bldg. Materials Corp. v. Elk Corp. of Dallas*, 90 F.3d 479, 482 (Fed.Cir.1996); see also *Display Research Lab. v. Telegen Corp.*, 133 F.Supp.2d 1170, 58 U.S.P.Q.2d 1149, 1153 (N.D.Cal.2001) (distinguishing between declaration that plaintiff should be named as inventor and declaration that it owns patent application). Consequently, we have no jurisdiction over the portion of count six seeking an ownership declaration.

Two other districts have considered whether they had jurisdiction under 35 U.S.C. § 116 to resolve inventorship disputes while a patent application was still pending. Both concluded that they did and we agree. See *Heineken Technical Serv. v. Darby*, 103 F.Supp.2d 476, 479 (D.Mass.2000); *Display Research Lab.*, 58 U.S.P.Q.2d at 1153. [FN1] But this claim also has the same problem that made count five deficient. Having surrendered any rights he held to MGH, Wolf admits he has no rights as an inventor. Consequently, he has no standing to bring suit against Photogen. See *Chou*, 2000 WL 222638 at *2 (finding no standing for employee to bring suit because she had surrendered rights to employer). Further, his statements do not constitute a threat on behalf of his employer, MGH. See *Sherman Treaters*, 607 F.Supp. at 943. Because Wolf has no standing to sue, and because Photogen has no reasonable basis for apprehending a suit by MGH,

there is no actual controversy over who is the proper inventor. We therefore dismiss the remainder of count six.

FN1. Because there is another mechanism for resolving inventorship disputes, an interference proceeding before the PTO, the *Display Research Lab.* court ultimately exercised its discretion not to issue a declaration. But the court did find, as a matter of law, that it had jurisdiction. See *id.* We agree with this analysis both that jurisdiction is proper and that an interference is generally a better avenue. Because we find there is no actual controversy, however, we need not decide whether to exercise our discretion here.

Count six was the only one purporting to raise a federal question. Having dismissed it, the remaining claims all arise under state law (breach of contract, trade secrets, conversion and breach of fiduciary duty). Because this case is still within our diversity jurisdiction, 28 U.S.C. § 1332, we now address Wolf's venue and transfer motions.

II. Venue

Wolf raises three arguments why venue is improper in this district. The forum clause is unenforceable. Wolf was not a party to the research agreement. This suit is not based on the research agreement.

First, Wolf challenges the forum selection clause as unenforceable. Since the Supreme Court's decision in *M/S Bremen v. Zapata Off-Shore Co.*, 407 U.S. 1 (1972), federal courts have consistently held that forum selection clauses are presumptively enforceable. See, e.g., *Heller Fin., Inc. v. Midwhey Powder Co.*, 883 F.2d 1286, 1290 (7th Cir.1989). The party challenging enforcement must show that it is unreasonable, unjust or that "enforcement would contravene a strong public policy of the forum in which suit is brought." *M/S Bremen*, 407 U.S. at 15. Wolf asserts that both defendants are from Massachusetts, the contracts were made in Massachusetts, the actions in question primarily occurred in Massachusetts and all the relevant documents are in Massachusetts. He contends that because this matter has no meaningful connection to Chicago it is unreasonable to select this district as a forum. These facts, however, only speak to the convenience of trying the case here, compared to Massachusetts.

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*3 Where it can be said with reasonable assurance that at the time they entered the contract, the parties ... contemplated the claimed inconvenience, it is difficult to see why any such claim of inconvenience should be heard to render the forum clause unenforceable.... In such circumstances it should be incumbent on the party seeking to escape his contract to show that trial in the contractual forum will be so gravely difficult and inconvenient that he will for all practical purposes be deprived of his day in court.

M/S Bremen, 407 U.S. at 16, 18. Although none of the parties is based in Illinois, this is their chosen forum. Plaintiff asserts that the parties specifically rejected Massachusetts and Tennessee because neither wanted to litigate disputes in the other's home jurisdiction. Photogen has some ties to Chicago through its board of directors, and Wolf made several trips here in the course of his work. This is not an unreasonable compromise, and it is certainly not unjust. It is a neutral and competent forum. Trying this case in Chicago may be less convenient for defendants than Boston, but it does not effectively deny them their day in court. Further, the Seventh Circuit has clearly held that public policy favors enforcing forum selection clauses. These provisions are treated the same as any other contractual clause. *See Northwestern Nat'l Ins. Co. v. Donovan*, 916 F.2d 372, 376 (7th Cir.1990). [FN2] The parties appear to have made an informed decision following arms-length negotiations. There is no evidence that this was an adhesive contract. And based on the content of the various agreements, disputes about confidentiality and ownership of proprietary information are almost certainly the types of controversies the parties had in mind when making this agreement. Wolf has not given us any reason to second-guess the parties' choice. The forum selection clause is valid.

FN2. The only justification for treating it differently, the court noted, is potential third party effects, which are more appropriately addressed by a § 1404(a) transfer than by striking down the clause. *See id.*

Second, Wolf argues that the clause is not enforceable against him because he was not a party to the research agreement. The contract defines Photogen and MGH as the parties (cplt.exh.B, p. 1), and the forum selection clause applies specifically to the "Parties ." It reads, in part:

Each Party submits to the exclusive jurisdiction of

any state or federal court sitting in Chicago, Illinois in any action or proceeding relating to this Agreement and each Party agrees that all claims in respect of the action or proceeding may be heard and determined only in any such court. Each of such Parties waive any defense of inconvenient forum to the maintenance of any action or proceeding so brought.

(cplt.exh.B, p. 13, ¶ 19). But the contract also expressly addresses Wolf's status. "Each person engaged by [MGH] as an Investigator hereby joins into this Agreement and agrees to become bound by all terms applicable to him or her and in particular, Sections 1, 7(b) and 13" (cplt.exh.B., p. 14, ¶ 20). Wolf signed the agreement under the statement, "Joined into by the following Investigators." *Disting Sparks Tune-Up Centers, Inc. v. Strong*, 1994 WL 188211 at *5 (N.D.Ill. May 12, 1994) (refusing to apply forum clause against parties who had not signed contract).

*4 Wolf now contends that he is not subject to the forum selection clause, because clause 20 only lists specific sections as applicable to investigators but does not include clause 19. The text, however, indicates otherwise--he is bound by "all terms applicable to him." The forum selection clause is certainly "capable of being applied" to Dr. Wolf. *See Webster's Third New Int'l Dictionary* 105 (1981). Further, the use of the introductory phrase "in particular" in clause 20 negates any inference that the list is exhaustive. Applying the plain meaning of this clause, Wolf is subject to the forum selection provision.

Third, Wolf argues that the forum selection clause should not control this suit because it does not relate exclusively to the research agreement and the other two contracts do not contain such clauses. The CDA and employment agreement are indeed silent about fora. This does not mean disputes involving them cannot be litigated here. The issues related to the research agreement, however, must be litigated here, and the claims are largely intertwined. The same actions could arguably breach all three agreements, and the research agreement's terms defining proprietary information and outlining Wolf's duties are relevant to whether any trade secrets were misappropriated or property converted. We also note that under Massachusetts law, which the contracts explicitly select, "[w]here two or more contracts are part of a single transaction and appear in

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combination ... to constitute entire understanding of the parties, the contracts are customarily read together as one, integrated agreement." *Leasecomm Corp. v. Crockett*, 1998 WL 15935 at *3 (Mass.App.Div. Jan. 13, 1998). The CDA was clearly part of the same transaction as the research agreement. By its terms, the parties created it to protect disclosures made in the course of negotiating the research agreement, and it was signed by Wolf, MGH and Photogen, the same parties who signed the research agreement. Consequently, the forum selection clause would also apply to disputes related to the CDA.

Count four, the fiduciary duty claim, relates exclusively to the employment agreement. It is predicated on Wolf's duties as a Photogen employee and officer. But the doctrine of pendent venue permits us to hear this claim as well. See *VMS/PCA Ltd. P'ship v. PCA Partners Ltd. P'ship*, 727 F.Supp. 1167, 1173-74 (N.D.Ill.1989); *Serpico v. Laborers' Int'l Union of North America*, 1995 WL 479569 at *5 (N.D.Ill. Aug. 5, 1995). Plaintiff's claims rely on many of the same underlying facts. Wolf's refusal to disclose research findings to Photogen, his assertions that he is a co-inventor and his expressed intentions to publish his findings, actions that allegedly breached Wolf's fiduciary duty, arguably also violated the research agreement. Forcing Photogen to prove the same facts in separate trials, in order to present alternate legal theories, would disserve judicial economy. [FN3] It is far better for one court to hear this entire case together.

FN3. Wolf, citing judicial economy and efficiency interests, previously argued that MGH was an indispensable party. Plaintiff amended its complaint to add MGH as a party so that a single trial could address this matter in its entirety. It would be particularly inequitable to now sever it.

III. Transfer

*5 Wolf also moves that, regardless of the forum selection clause, we transfer this case to the District of Massachusetts. Motions for transfer are governed by federal law, even in diversity cases. See *Stewart Organization, Inc. v. Ricoh Corp.*, 487 U.S. 22 (1988). The statute provides, "For the convenience of parties and witnesses, in the interest of justice, a district court may transfer any civil action to any other district or division where it might have been

brought." 28 U.S.C. § 1404(a). The district court has discretion to make an "individualized, case-by-case consideration of convenience and fairness." *Van Dusen v. Barrack*, 376 U.S. 612, 622 (1964).

The Supreme Court has explicitly held that a forum selection clause is not dispositive in considering a motion for transfer, but it "will be a significant factor that figures centrally in the district court's calculus." *Stewart*, 487 U.S. at 29. The statute enumerates four factors: (1) venue is proper in both the transferor and transferee district; (2) the convenience of the parties; (3) the convenience of witnesses; and (4) the interests of justice. Movants bear the burden to show that the "transferee forum is clearly more convenient." *Heller Financial, Inc. v. Midwhey Powder Co.*, 883 F.2d 1286, 1293 (7th Cir.1989).

The first two factors do not merit substantial discussion. As we explained above, venue is proper here by the parties' consent. It is also proper in Massachusetts for the reasons Wolf argues--both defendants are from Massachusetts, many of the acts in question occurred there, etc. See 28 U.S.C. § 1391(a). And defendants have waived convenience of the parties. "The presence of a valid forum selection clause prevents a defendant from asserting its own inconvenience as a reason supporting its motion to transfer." *FUL Inc. v. Unified School Dist. No. 204*, 839 F.Supp. 1307, 1311 (N.D.Ill.1993).

Turning to the third factor, convenience of witnesses includes the number of witnesses in each district (including the nature and importance of their testimony), access to sources of proof, and the situs of material events. See *Household Fin. Serv., Inc. v. Northern Trade Mortgage Corp.*, 1999 WL 782072 at *5 (N.D.Ill. Sept. 27, 1999). Many potential witnesses reside in either Massachusetts or Tennessee. The latter will be equally inconvenienced by a trial in Boston or in Chicago. More importantly, all the witnesses Wolf has identified are employees of the parties. [FN4] The parties will presumably ensure that they are available to testify wherever the trial is held. See *College Craft Co. v. Perry*, 889 F.Supp. 1052, 1055 (N.D.Ill.1995); *FUL*, 839 F.Supp. at 1311-12. Movant has not identified any non-party witness who is located out of this jurisdiction. [FN5] Plaintiff, however, has identified several potential witnesses who do reside

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in Illinois, including its patent counsel and auditors. [FN6] Both parties have asserted that there are important documents in their respective preferred fora. Documents and records are usually not a very persuasive reason to transfer a case. *See Household Financial Services*, 1999 WL 782072 at *6. They are easily transportable, and movant has made no showing that it cannot bring the necessary documents to this district.

FN4. *See* Wolf br. at 11 ("Photogen's other Massachusetts scientists, as well as scientists and administrators from MGH, may be needed to testify."); *see also* Gottfried aff. at ¶ 4 (naming specific MGH and Photogen employees who comprise Wolf's witness list).

FN5. Even if there are witnesses who cannot, or will not, come to this district, this evidence can be presented by videotaped deposition. *See Household Fin. Serv.*, 1999 WL 782072 at *5.

FN6. Wolf correctly argues that we should not consider convenience to plaintiff's counsel. *See Von Holdt v. Husky Injection Molding Sys., Ltd.*, 887 F.Supp. 185, 190 (N.D.Ill.1995). We do not consider convenience to trial counsel. Photogen, however, has proffered its patent counsel as a potential fact witness. That a witness happens to be an attorney does not preclude us from considering that person's convenience as we would any others'.

*6 The "interests of justice" do weigh slightly in favor of Massachusetts as a forum. The federal courts in Boston obviously have more experience with Massachusetts state law than this court does. And Massachusetts also has an interest in its employees and its public policy. But these interests are not particularly compelling here. This court has substantial experience with other jurisdictions' laws and can apply Massachusetts law competently and fairly. Moreover, the parties explicitly accepted this scenario in contracting both to apply Massachusetts law and for a Chicago forum. Massachusetts public policy also favors enforcing forum selection clauses. *See Jacobson v. Mailboxes, Etc. U.S.A., Inc.*, 646 N.E.2d 741 (Mass.1995). Other public interests include ensuring a speedy trial and trying related litigation together. *See Heller Fin.*, 883 F.2d at 1293. These can be accomplished in either forum.

It would certainly be reasonable to try this case in

Massachusetts. But none of Wolf's arguments is overwhelming, and all are mitigated by other factors. The Supreme Court has made clear that the forum selection clause should figure centrally in our calculus, *Stewart*, 487 U.S. at 29, and the Seventh Circuit admonished that we should not permit parties to use transfer motions to circumvent enforceable clauses, *Northwestern Nat'l Ins. Co.*, 916 F.2d at 378. Considering both the convenience of non-party witnesses and the interest of justice, Wolf has not shown that Massachusetts is a clearly superior forum. Consistent with both federal and Massachusetts public policy, we enforce the parties' wishes as expressed in their contract.

CONCLUSION

For the foregoing reasons, defendant Wolf's motion to dismiss counts five and six for lack of subject matter jurisdiction is granted, but his motion to dismiss the entire complaint for lack of venue and his motion to transfer are denied.

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Motions, Pleadings and Filings (Back to top)

. 2001 WL 34483676 (Trial Pleading) Second Amended Verified Complaint for Injunctive and Other Relief (Oct. 25, 2001)

. 2001 WL 34670893 (Trial Pleading) Second Amended Verified Complaint for Injunctive and Other Relief (Oct. 25, 2001)

. 2000 WL 34444072 (Trial Pleading) Complaint for Declaratory Judgment and Additional Relief (Sep. 22, 2000)

. 1:00CV05841 (Docket)
(Sep. 22, 2000)

. 2000 WL 34304592 (Trial Pleading) Complaint for Declaratory Judgment and Additional Relief (Sep. 21, 2000)

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Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court, N.D. Illinois, Eastern
 Division.

Todd TROST, et. al Plaintiff,
 v.

Jason BAUER, & Azuradisc, Inc., Defendants.
 No. 01 C 2038.

July 24, 2001.

MEMORANDUM AND OPINION

HIBBLER, District J.

*1 This Court has before it Defendants' Motion to Dismiss or Transfer for Lack of Jurisdiction and Improper Venue (doc. # 4). Plaintiffs brought their Declaratory Judgment Action claiming that they have not infringed and are not infringing on several of Defendants' patents. Plaintiffs claim this Court has personal jurisdiction over Defendants by their presence in this district, the operation of a website in this district, and sending infringement letters to Plaintiff in this District. Plaintiffs also claim that there is an actual case or controversy between the parties because the aforementioned letters placed them in reasonable apprehension of impending litigation.

Defendants claim lack of personal jurisdiction over Jason Bauer and Azuradisc, lack of subject matter jurisdiction and improper venue pursuant to Rules 12(b)(2), (b)(1), and (b)(3), of the Federal Rules of Civil Procedure. For the reasons set forth herein, Defendants' Motion to Dismiss for Lack of Jurisdiction (doc # 4) is GRANTED. Defendants' Motion to Transfer for Improper Venue (doc. # 4) is dismissed as moot.

BACKGROUND

Plaintiff Todd Trost is an Illinois resident and the remaining three Plaintiffs, Damaged Disc Repair, Inc. ("Damaged Disk"), Orland Video West, Inc. ("Video West") and Specialty Store Services, Inc. ("Specialty Store") are Illinois corporations, doing business in the state (collectively known as "Plaintiffs"). Defendant Jason Bauer ("Bauer") is an

Arizona resident and Defendant Azuradisc, Inc. ("Azuradisc") is an Arizona corporation, with its principal place of business in Arizona (collectively known as "Defendants").

In late 1997, Marshall Weinstein, a principal of Plaintiff Specialty Store, telephoned Bauer regarding advertising Defendants' CD scratch removal machines in Weinstein's trade magazine. The machines are used to repair and remove scratches on CD's, DVD's and other such discs. [FN1] Eventually Weinstein visited Bauer's home in Arizona, inspected the machines, discussed the engineering details, and read the business plans. Sometime thereafter, Weinstein returned to his home in Illinois and began to make his own disc repair machines, selling them through Specialty Store.

FN1. Defendants' machines are currently covered by three different patents.

On January 23, 2001, Defendants sent Plaintiffs correspondence stating that they may be in violation of the patents involving the use, manufacture, and distribution of Plaintiffs' compact disc repair machines. Plaintiffs' retained counsel and sent a letter of inquiry to Defendants' counsel on February 14, 2001, to which they allegedly received no response. On March 22, 2001 Plaintiffs filed suit in this Court.

LEGAL STANDARDS

A. Subject Matter Jurisdiction

The Federal Rules of Civil Procedure provide for dismissal of claims when the district court lacks subject matter jurisdiction. Fed.R.Civ.P. 12(b)(1). On a motion to dismiss for lack of subject matter jurisdiction, the plaintiff bears the burden of proving facts sufficient to establish personal jurisdiction. *Michael J. Neuman & Assoc. v. Florabelle Flowers, Inc.* 15 F.3d 721, 723-24 (7th Cir.1994). Subject-matter jurisdiction generally should be considered before personal jurisdiction, even though a district court may dismiss for lack of personal jurisdiction without determining whether subject-matter jurisdiction exists. *Central States, Southeast and Southwest Areas Pension Fund v. Reimer Express World Corp.*, 230 F.3d 934, 939 n. 2 (7th Cir.2000); *Ruhrgas AG v. Marathon Oil Co.*, 526 U.S. 574, 578, 587-88 (1999).

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*2 In cases involving the Declaratory Judgment Act, 28 U.S.C. § 201, a federal court can issue a declaratory judgment only if an "actual controversy" exists at the time the suit was filed. *International Harvester Co. v. Deere & Co.*, 623 F.2d 1207, 1210 (7th Cir.1980). To demonstrate an actual controversy, Plaintiffs must show (1) that they have acted, or are prepared to act in a way that could constitute infringement, and (2) Defendants' conduct creates a reasonable apprehension of suit on Plaintiffs' part. *Serco Services Co., L.P. v. Kelley Co., Inc.*, 51 F.3d 1037, 1038 (Fed.Cir.1995). It is clear that this Court possesses discretion in determining whether and when to entertain an action under the Declaratory Judgment Act, even when the suit otherwise satisfies subject matter jurisdictional prerequisites. *Wilton v. Seven Falls Co.*, 515 U.S. 277, 282-83 (1995) (citing *Brillhart v. Excess Ins. Co. of America*, 316 U.S. 491 (1942)).

B. Personal Jurisdiction

The Federal Rules of Civil Procedure provide for dismissal of claims when the district court lacks personal jurisdiction. Fed.R.Civ.P. 12(b)(2). In a case based on diversity of citizenship, a federal district court in Illinois may exercise personal jurisdiction over a non-resident defendant, only if an Illinois state court would have jurisdiction. *Michael J. Neuman & Assoc. v. Florabelle Flowers, Inc.*, 15 F.3d 721, 723-24 (7th Cir.1994); *Dehmlow v. Austin Fireworks*, 963 F.2d 941, 945 (7th Cir.1992). When reviewing a motion to dismiss, this Court takes all jurisdictional allegations in the complaint as true, unless controverted by Defendants' affidavits. *Turnock v. Cope*, 816 F.2d 332, 333 (7th Cir.1987). Any conflicts between the parties' affidavits must be resolved in Plaintiffs' favor. *Id.* To survive a motion to dismiss, Plaintiffs have the burden of making a prima facie case for personal jurisdiction. *RAR, Inc. v. Turner Diesel, Ltd.*, 107 F.3d 1272, 1276 (7th Cir.1997); *IDS Life Ins. Co. v. SunAmerica, Inc.*, 958 F.Supp. 1258, 1264 (N.D.Ill.1997), *vacated in part*, 136 F.3d 537 (7th Cir.1998) (In order to survive a defendants' motion to dismiss, the plaintiff must demonstrate that Illinois law permits jurisdiction and that the exercise of jurisdiction will not offend due process).

Federal Circuit law is controlling as to issues that are unique to patent law. "A procedural issue that is not itself a substantive patent law issue is ... governed by Federal Circuit law if it bears an

essential relationship to matters committed to [the Federal Circuit's] exclusive jurisdiction by statute, or if it clearly implicates the jurisprudential responsibilities of [the Federal Circuit] in a field within its exclusive jurisdiction." *McCook Metals L.L.C., v. Alcoa Inc.*, 192 F.R.D. 242, 251 (N.D.Ill.2000) (quoting *In re Spalding Sports Worldwide, Inc.*, 203 F.3d 800, 803 (Fed.Cir.2000)). Additionally, "[f]or procedural issues in a patent case that are not unique to patent law, courts apply the law of the circuit in which the district court sits." *Id.* In determining whether jurisdiction exists over an out of state defendant, this Court must defer to the law of the Federal Circuit with regard to the federal constitutional due process analysis of the defendant's contact with the forum state. *Graphic Controls Corp. v. Utah Medical Products, Inc.*, 149 F.3d 1382, 1386 (Fed.Cir.1998). However, this Court must look to relevant Illinois state and federal law in interpreting the meaning of Illinois' long-arm statute. *Id.*

1. Illinois Long-Arm Statute

*3 This Court must determine whether Plaintiffs have cleared the three hurdles to personal jurisdiction, state statutory law; state constitutional law; and federal constitutional law, when making its determination. Important to this Court's analysis is Illinois' long-arm statute governing the jurisdiction of courts which provides that an Illinois court 'may ... exercise jurisdiction on any ... basis now or hereafter permitted by the Illinois Constitution and the Constitution of the United States.' 735 ILCS 5/2-209(c). The Seventh Circuit has explained that the Illinois long-arm statute is coextensive with federal due process requirements such that if the contacts between the defendant and Illinois are sufficient to satisfy the requirements of due process, then the requirements of both the Illinois long-arm statute and the United States constitution have been met, and no other inquiry is necessary.

Klump v. Duffus, 71 F.3d 1368, 1371 (7th Cir.1995). Therefore, because the Illinois long-arm statute authorizes personal jurisdiction to the extent of constitutional limits, the three inquiries collapse into two, one state and one federal. *RAR*, 107 F.3d at 1276. If jurisdiction is improper under the Illinois or United States' Constitutions, then this Court cannot exercise jurisdiction over Defendants. *Jamik, Inc. v. Days Inn of Mount Laurel*, 74 F.Supp.2d 818, 821 (N.D.Ill.1999).

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2. Federal Due Process

The Federal Circuit, like the Seventh Circuit applies the " 'minimum contacts' standard of *International Shoe* [Co. v. Washington, 326 U.S. 310 (1945)] and its progeny to questions of personal jurisdiction in federal question cases, such as those arising under the patent laws." *Akro Corp. v. Luker*, 45 F.3d 1541, 1545 (Fed.Cir.1995) (citing cases). Under *International Shoe*, federal due process requires Defendants to have "certain minimum contacts with [Illinois] such that the maintenance of the suit does not offend 'traditional notions of fair play and substantial justice.'" ' *International Shoe*, 326 U.S. at 316. Whether a defendant has maintained minimum contacts in each particular case is dependent on whether the plaintiff asserts specific or general jurisdiction. Specific jurisdiction refers to jurisdiction over a defendant in a suit "arising out of or related to the defendant's contacts with the forum." *Helicopteros Nacionales de Colombia, S.A. v. Hall*, 466 U.S. 408, 414 n. 8 (1984). General jurisdiction is for suits neither arising out of nor related to the defendant's contacts, and is permitted only where the defendant has "continuous and systematic general business contacts" with the forum state. *Id.* at 416.

a. Specific Jurisdiction

To determine whether specific jurisdiction exists, this Court must decide whether Defendants have "purposefully established minimum contacts within the forum state" and whether those contacts would make personal jurisdiction reasonable and fair under the circumstances. *Burger King Corp. v. Rudzewicz*, 471 U.S. 462, 476-77 (1985). This Court's first inquiry is whether Defendants could reasonably anticipate being haled into court in this state. *Id.* at 474-75. To answer this question, this Court must determine if Defendants purposefully availed themselves of the privilege of conducting activities in Illinois. *Id.* This Court cannot exercise personal jurisdiction over Defendants "solely as a result of random, fortuitous, or attenuated contacts." *Id.* Next, this Court must consider whether exercising personal jurisdiction over Defendants is reasonable such that it comports with traditional notions of fair play and substantial justice. This Court must consider the following five factors, (1) the burden on the defendant of litigating in the forum; (2) the interests of the forum; (3) the plaintiff's interest in obtaining relief; (4) the interstate judicial system's interest in obtaining the most efficient resolution of

controversies; and (5) the shared interests of the states in furthering fundamental substantive policies. Once minimum contacts have been established, "often the interest of the plaintiff and the forum in the exercise of jurisdiction will justify even the serious burdens placed on the alien defendant." *Id.*

b. General Jurisdiction

*4 General jurisdiction arises when the non-resident defendant has "continuous and systematic general business contacts" with the forum state. *RAR*, 107 F.3d at 1277 (citing *Helicopteros Nacionales*, 466 U.S. at 416). This Court must look to Defendants' additional contacts with the forum state beyond those related to the action being brought against them to determine whether general personal jurisdiction exists. *Dehmlow v. Austin Fireworks*, 963 F.2d 941, 947 n. 6 (7th Cir.1992). However, Defendants' actions must be intentional, substantial, and continuous, rather than inadvertent, trivial, or sporadic. *Asset Allocation & Mgmt. Co. v. Western Employers Ins. Co.*, 892 F.2d 566, 570 (7th Cir.1989).

ANALYSIS

A. Lack of Subject Matter Jurisdiction

Plaintiffs assert that they have alleged sufficient facts to establish subject matter jurisdiction for their Declaratory Judgment Action because an actual controversy exists between the parties, and Defendants' actions placed them in a reasonable apprehension that they would be sued for infringement. Defendants claim that no actual controversy exists because the letters sent to Plaintiffs were mere inquiries concerning Plaintiffs' possible infringement. Based on the facts presented, this Court declines to exercise jurisdiction over the Declaratory Judgment claim even though an actual controversy exists.

This Court has jurisdiction over this cause of action in accordance with the Declaratory Judgment Act. "A declaratory judgment action affords a measure of relief to the potential infringer who is under the shadow of threatened infringement litigation." *Serco Srvs. Co., L.P. v. Kelley Co., Inc.*, 51 F.3d 1037, 1038 (Fed.Cir.1995). Under the Act, an actual controversy between the parties must exist for this Court to exercise jurisdiction over the Declaratory Judgment claim. "[T]he presence of an 'actual controversy' within the meaning of the statute depends on whether the facts alleged, under all the

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circumstances, show that there is a substantial controversy, between parties having adverse legal interests, of sufficient immediacy and reality to warrant the issuance of a declaratory judgment." *EMC Corp. v. Norand Corp.*, 89 F.3d 807, 810 (Fed.Cir.1996) (citations omitted). However, should this Court determine that an actual controversy exists, it is entirely within its discretion to decline exercising jurisdiction. *Id.* This Court should consider whether Plaintiffs actually produced an allegedly infringing product and whether Defendants' conduct actually created an objectively reasonable apprehension of suit on Plaintiffs' part. *Id.* at 811.

Plaintiffs claim that they were placed in reasonable apprehension of an infringement suit based on letters dated January 23, 2001. (Pl.'s Exs. 1 and 2.) Plaintiffs allege that Defendants threatened to sue for them patent infringement. Defendants counter that the letters were not threatening and were sent merely to inquire into Plaintiffs' actions. Based on the language of the two letters, this Court finds that an actual controversy existed. Plaintiffs quote specific language from the letters in their reply that they claim placed in them in apprehension of an infringement suit. In reading Defendants' letter to Plaintiffs, it is clear that Defendants state that in the event that Plaintiffs infringe the patents, Defendants intend to take all steps legally permitted. [FN2] The Federal Circuit has made it clear that "where all that is present is negotiation unaccompanied by threats of legal action, the setting is not sufficiently adverse to create a justiciable controversy. That principle, however, is inapplicable in a case such as this one, where the patentee has made explicit references to the prospect of initiating legal action." *EMC Corp.*, 89 F.3d at 812. Accordingly, this Court is satisfied that an actual controversy exists under the Declaratory Judgment Act.

FN2. Specifically, Defendants' letter states, "[p]lease be advised that any infringement of these patents is a matter of grave concern to us. We intend to take all steps legally permitted to enforce our clients' intellectual property. These steps may include, when necessary, resorting to litigation to ask the court's help in obtaining all monetary and injunctive relief to which our clients are entitled. In fact, one such lawsuit is in progress now, and if you do not cooperate, your firm may be next." (Pls.' Exs. 1 & 2, Letters from Defendants to Plaintiff Trost and

Weinstein of January 23, 2001, at 1.)

*5 However, even though this Court has found an actual controversy, an exercise of jurisdiction is not required and will only be reversed upon a finding of an abuse of discretion. *Id.* In fact, "as long as [this Court] acts in accordance with the purposes of the Declaratory Judgment Act and the principles of sound judicial administration, [it] has broad discretion to refuse to entertain a declaratory judgment action." *Id.* at 813-14. In response to Defendants' January 23, 2001 letter, Plaintiffs sent a letter stating that they would evaluate Defendants' claims and respond to them at the end of their investigation. [FN3] Plaintiffs claim that Defendants failed to respond to their letter. Less than six weeks after responding the Defendants letter, Plaintiffs filed suit. This Court may take into account whether Plaintiffs' "first-filed action is initiated in an apparent attempt to pre-empt anticipated litigation and deprive the party of its choice of forum." *Solo Cup Co., v. Fort James Corp.*, No. 99 C 4724, 1999 WL 1140885, at *1 (N.D.Ill. Nov. 29, 1999) (quoting *KPR Inc. v. C & F Packing Co., Inc.*, 30 U.S.P.Q.2d 1320, 1323 (N.D.Tex.1993)). In this case, this Court finds that Plaintiffs filed this action for declaratory judgment solely for forum shopping purposes. Plaintiffs assert that they brought this anticipatory cause of action because they had a reasonable apprehension of being sued for patent infringement. While it is true that the purpose of the Act is to alleviate Plaintiffs' necessity of waiting indefinitely for an infringement action to be filed, *KPR*, 30 U.S.P.Q.2d at 1323, the circumstances of this litigation act as a mitigation to Plaintiffs' apprehension. Plaintiffs claim that Defendants' previous suits against other competitors is evidence of its intent to sue. Yet "the fact that [Defendants have] recently filed infringement suits against other [competitors] based upon the same patents and equipment at issue in this case should also have been an indication to [Plaintiffs] that [they] would not be forced to wait indefinitely for [Defendants] to file suit." *Id.* The facts in this case are clear, although Plaintiffs assured Defendants that a review of the issues would be done and the results of the review would be forwarded to Defendants, Plaintiffs instead filed suit less than six weeks after sending its February 14, 2001 letter. [FN4] Accordingly, based upon the facts presented, this Court finds that even though a real controversy exists, Plaintiffs raced to the courthouse to Defendants' detriment. *Solo Cup*,

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1999 WL 1140885, at *2. Therefore, this Court declines to exercise subject matter jurisdiction over the Declaratory Judgment claim.

FN3. In response the Defendants' letter Plaintiffs wrote, "[w]e are presently evaluating the issues you have raised and will respond to them as soon as we complete our evaluation." (Pls.'s Ex. 3, Letter from Plaintiffs to Defendants of February 14, 2001.)

FN4. This Court anticipates that Plaintiffs will claim that in their February 14th letter, they requested further information from Defendants and when Defendants failed to reply they filed suit. However, nowhere in the letter do Plaintiffs inform Defendants that failure to submit the additional information will result in an anticipatory lawsuit.

B. Lack of Personal Jurisdiction

Defendants also argue that Plaintiffs have failed to demonstrate that personal jurisdiction exists. Defendants claim that they are not doing business in Illinois, their website does not specifically target Illinois or its residents, and the infringement letters do not establish minimum contacts such that this Court should exercise personal jurisdiction over the Defendants. Plaintiffs counter that this Court should exercise personal jurisdiction over Defendants based upon the infringement letters and solicitation of sales in Illinois. After careful review of the evidence and considering all well-plead facts in Plaintiffs' favor, this Court finds that Plaintiffs have failed to meet their burden of demonstrating sufficient minimum contacts which necessitate this Court's exercise of personal jurisdiction.

*6 Plaintiffs' burden is to establish that jurisdiction exists under the Illinois long-arm statute. *Inamed Development Co. v. Kuzmak*, 249 F.3d 1356, 1360 (Fed.Cir.2001). Illinois' long-arm statute permits the exercise of jurisdiction over claims which arise out of the defendant's transaction of business, or commission of a tort in Illinois, as well as, performance of a contract substantially connected with Illinois. 735 ILCS 5/2-209(a)(1) and (2). The "transaction of business test" may be satisfied by an isolated act, as long as, Plaintiffs' claims arise out of that act. *Jacobs/Kahan & Co. v. Marsh*, 740 F.2d 587, 591 (7th Cir.1984). Additionally, Illinois state courts have jurisdiction over a non-resident defendant "doing business" in the state. 735 ILCS 5/2-209(b). A corporation is "doing business" in

Illinois if it engages in regular activities in Illinois, "not occasionally or casually, but with a fair measure of permanence and continuity." *Michael J. Neuman*, 15 F.3d at 724 (citations and quotations omitted). "The decision as to whether a corporation's in-state activities are sufficiently permanent and continuous to qualify as 'doing business' is to be made on a case-by-case basis and depends on the unique situation in particular case." *IDS*, 958 F.Supp. At 1265. The Seventh Circuit has defined the concept of "doing business" as "those nonresident businesses that are so like resident businesses, insofar as the benefits they derive from state services are concerned, that it would give them an undeserved competitive advantage if they could escape having to defend their actions in the local courts." *IDS*, 136 F.3d at 540-41.

Should Plaintiffs satisfy their burden of demonstrating minimum contacts, then Defendants bear the burden of demonstrating that this Court's exercise of jurisdiction will not offend due process. *Inamed*, 249 F.3d at 1360. Due process measures the limits of personal jurisdiction by the strength of the relationship between the defendant and the forum state. The due process inquiry encompasses two parts, minimum contacts and fair play and substantial justice. First, the defendant must have 'purposely established 'minimum contacts' in the forum State." *Burger King Corp. v. Rudzewicz*, 471 U.S. 462, 475 (1985). Second, the exercise of jurisdiction over the defendant must not offend traditional notions of fair play and substantial justice. *International Shoe Co. v. Washington*, 326 U.S. 310, 316 (1945).

The required minimum contacts are established in one of two ways, when defendant has sufficient "contacts of a continuous and systematic nature," with the forum, *Helicopteros Nacionales De Columbia, S.A. v. Hall*, 466 U.S. 408, 416 (1984), or the cause of action before the court relates to, or arises out of, defendant's contacts with that forum state. *Shaffer v. Heitner*, 433 U.S. 186, 204 (1977). These minimum contacts must "result from actions by the defendant himself that create a 'substantial connection' with the forum State." *Burger King*, 471 U.S. at 475. The well-settled rule is that the defendant must have "purposefully availed" himself of the privilege of conducting activities within the forum state such that he should "reasonably anticipate being haled into court there." *World-Wide*

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Volkswagen Corp. v. Woodson, 444 U.S. 286, 297 (1980). Defendants may not be haled into a jurisdiction "solely as a result of random, fortuitous or attenuated contacts" or stem from the "unilateral activity of another party or third person." *Burger King*, 471 U.S. at 475.

*7 A defendant may be subject to either specific or general jurisdiction under the "minimum contacts" test. *LSI Indus. v. Hubbell Lighting*, 232 F.3d 1369, 1375 (Fed.Cir.2000). Specific jurisdiction exists if Defendants purposefully directed their activities at Illinois residents, Plaintiffs' claims arise out of or are related to those activities, and the assertion of personal jurisdiction is reasonable and fair. *Hollyanne v. TFT, Inc.*, 199 F.3d 1304, 1307-08 (Fed.Cir.1999); *RAR*, 107 F.3d at 1277. General jurisdiction exists when a defendant maintains "continuous and systematic" contacts with the forum state even when the cause of action has no relation to those contacts. It is Defendants' conduct in relation to Illinois, not the unilateral actions of Plaintiffs, which determine jurisdiction. *Dehmlow v. Austin Fireworks*, 963 F.2d 941, 946 (7th Cir.1992). In this case, Plaintiffs have failed to allege either specific or general jurisdiction, therefore, this Court will analyze their claims under both options.

1. Personal Jurisdiction Over Jason Bauer

Bauer claims that this Court lacks personal jurisdiction over him as he has had no contact whatsoever with the forum state. Plaintiffs counter that Illinois has personal jurisdiction over Bauer for two reasons: (1) the letter sent to Plaintiffs was sent on behalf of Bauer and Azuradisc, and (2) Bauer's sole proprietorship, CD Saver, had dealings in Illinois between 1997 and 1999, before Azuradisc was incorporated. In light of the facts before it, this Court finds that it lacks personal jurisdiction over Defendant Bauer.

In order for this Court to exercise personal jurisdiction over Bauer, Plaintiffs must demonstrate that jurisdiction is proper under the Illinois long-arm statute and personal jurisdiction satisfies constitutional standards of due process and fairness. First, The Illinois Supreme Court has interpreted the Illinois long-arm statute as being more limited than due process would allow in some situations. One such limitation is the fiduciary shield doctrine. The fiduciary shield doctrine prevents personal jurisdiction over an individual whose contacts with

Illinois are solely the result of acts as a representative or fiduciary of the corporation. *Plastic Film Corp. v. Unipac, Inc.*, 128 F.Supp.2d 1143, 1146 (N.D.Ill.2001). The fiduciary shield doctrine will not prevent jurisdiction over an individual where the corporation is the individual's alter ego, however, just because an individual is a member of management or holds controlling positions in a corporation does not nullify the protection of the fiduciary shield. *Kula v. J.K. Schofield & Co.*, 668 F.Supp. 1126, 1129 (N.D.Ill.1987). This is because Illinois recognizes that corporate officers, directors, and shareholders are separate and distinct from the corporation. *Id.* Second, in determining whether the defendant purposefully availed itself of a particular forum for purposes of the Fourteenth Amendment, courts in this circuit have considered whether the defendant solicited the transaction in question within the proposed forum. *Federated Rural Elec. Ins. Corp. v. Inland Power and Light Co.*, 18 F.3d 389, 394 (7th Cir.1994). The handful of letters and phone calls that passed between Plaintiffs and Bauer is not enough to clear the hurdle. *Helicopteros Nacionales*, 466 U.S. at 416; *Young v. Colgate-Palmolive Co.*, 790 F.2d 567, 570 (7th Cir.1986); *Lakeside Bridge & Steel Co. v. Mountain State Construction Co.*, 597 F.2d 596, 598, 604 (7th Cir.1979); *Madison Consulting Group v. South Carolina*, 752 F.2d 1193, 1203 n. 18 (7th Cir.1985) (dictum). This is true because even though sending an infringement letter falls within the ambit of the long-arm statute, additional contacts are necessary to satisfy due process. *E.J. McGowan, Inc. v. Biotechnologies, Inc.*, 736 F.Supp. 808, 812 (N.D.Ill.1990); *International Honeycomb Corp. v. Transtech Service Network, Inc.*, 742 F.Supp. 1011, 1013 (N.D.Ill.1990). Sending the infringement letter to a plaintiff in Illinois does not confer personal jurisdiction over a non-resident defendant. *Publications Intern. v. Simon & Schuster, Inc.*, 763 F.Supp. 309, 313 n. 4 (N.D.Ill.1991) (citing *E.J. McGowan*, 736 F.Supp. at 812.) In fact, the Federal Circuit has recently stated that "the sending of an infringement letter, without more, is insufficient to satisfy the requirements of due process when exercising jurisdiction over an out-of-state patentee." *Inamed*, 249 F.3d at 1361. Furthermore, courts in this circuit have frequently disagreed as to whether a defendant's small volume of sales in the forum state is sufficient to establish jurisdiction. A review of the cases in which a defendant's small

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volume of sales within the forum state subjected it to the exercise of personal jurisdiction suggests that courts exercise jurisdiction only where the defendant also engaged in the active solicitation of business or made direct advertisements targeting the forum state. *Michael J. Neuman*, 15 F.3d at 725; *Kavo America Corp. v. J.F. Jelenko & Co.*, No. 00 C 1355, 2000 WL 715602, at *4 (N.D. Ill. June 2, 2000); *Deere & Co. v. Howard Price Turf Equipment, Inc.*, No. 99 C 4169, 1999 WL 1101215, at *3 (N.D. Ill., 1999 Dec. 1, 1999); *Milligan v. Soo Line R. Co.*, 775 F.Supp. 277, 280 (N.D.Ill.1991).

*8 Because Plaintiffs have failed to meet their burden of establishing a prima facie case of personal jurisdiction over Bauer, this Court will decline from exercising personal jurisdiction over him. It is arguable that resolving all disputed facts in Plaintiffs' favor leads this Court to the conclusion that the fiduciary shield doctrine does not apply to Bauer because he is a high-ranking corporate officer of Azuradisc, *R-Five, Inc. v. Sun Tui, Ltd.*, No. 94 C 4100, 1995 WL 548633, at *5 (N.D.Ill. Sept. 12, 1995); *Brujis v. Shaw*, 876 F.Supp. 975, 980 (N.D.Ill.1995), however, little doubt exists as to whether Bauer had minimum contacts with Illinois to the extent that maintaining personal jurisdiction over him would not offend traditional notions of fair play and substantial justice. *Helicopteros Nacionales*, 466 U.S. at 416. Plaintiffs claim that because Bauer is the inventor and sole owner of the patents at issue, the letters sent to Plaintiffs were on his behalf, and the fact that he did business as CD Saver before he incorporated Azuradisc, leads to the conclusion that he has purposefully directed his activities at Illinois residents. This Court wholeheartedly disagrees with that assessment. Bauer's letters to Plaintiff are not sufficient to subject Bauer to this Court's personal jurisdiction. *Publications Intern.*, 763 F.Supp. at 313 n. 4. Furthermore, the fact that Bauer ran CD Saver as a sole proprietorship between 1997 to 1999 has no bearing on whether he should be subjected to personal jurisdiction for Azuradisc's transactions. Bauer "should have some control over--and certainly should not be surprised by--the jurisdictional consequences of [his] actions. Thus, when conducting business with a forum in one context, [Bauer] should not have to wonder whether some aggregation of other past and future forum contacts will render [him] liable to suit there." *RAR.*, 107

F.3d at 1278. Even assuming that running CD Saver could somehow subject Bauer to personal jurisdiction, Bauer has demonstrated that CD Saver and Azuradisc's combined sales made in Illinois amount to approximately 1% of those companies total sales. There is no evidence that Bauer has solicited or targeted business in Illinois on Azuradisc's behalf, and absent specific solicitation and targeting of Illinois residents, this Court is hesitant to exercise personal jurisdiction over Bauer. This is because the fact that Bauer conducted an business with an Illinois resident does not create personal jurisdiction over him. *Hot Wax, Inc. v. Stone Soap, Co.*, No. 97 C 6878, 1999 WL 183776, at *4 (N.D.Ill. March 25, 1999). Plaintiffs also point to the fact that Bauer conducted a conversation with one of Plaintiff's representatives and sent information in reference to his patents. However, Plaintiffs conveniently fail to mention that it was Specialty Store's representative who initiated the phone call and visited Bauer at his Arizona home. "[C]ontacts resulting from the 'unilateral activity' of others do not count." *Red Wing Shoe Co., Inc. v. Hockerson-Halberstadt, Inc.*, 148 F.3d 1355, 1359 (Fed.Cir.1998) (citing *Burger King*, 471 U.S. at 475 & n. 17). These facts are not sufficient to sustain jurisdiction over Bauer based on the well-established notion of minimum contacts under the *International Shoe* standard. In fact, based on the facts presented, Bauer's contact with Illinois falls within the realm of minuscule rather than minimum contacts.

*9 Finally, there can be no doubt that Bauer did not have continuous and systematic contact with Illinois. Plaintiffs point to the fact that between 1997 and 1999, Bauer ran CD Saver and solicited business from Illinois residents during that time. (Pls.'s Ex. 5 at 2 ¶ 1). However, a review of Plaintiffs' exhibits and Bauer's affidavit do not support the allegation that Bauer did business with Illinois residents while he ran CD Saver. Even if Plaintiffs could establish that Bauer did solicit Illinois residents, the fact that those solicitations ended two years prior to suit negates any continuous and systematic contact Bauer may have had with Illinois. *Rokeby-Johnson v. Derek Bryant Ins.*, 594 N.E.2d 1190, 1196-97 (Ill.App.Ct.1992); *Reeves v. Baltimore & Ohio R.R. Co.*, 526 N.E.2d 404 (Ill.App.Ct.1992).

2. Personal Jurisdiction Over Azuradisc
Azuradisc argues that this Court lacks personal

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jurisdiction over it because the volume of sales to Illinois consists of a very small percentage of its total sales. Plaintiffs counter that because Azuradisc maintains a website, has distributed flyers and postcards as solicitations, and sold more than \$25,000 in merchandise, this Court should exercise personal jurisdiction over the corporation. [FN5] This Court finds that it does not have jurisdiction over Azuradisc because its contacts with Illinois are insufficient.

FN5. Plaintiffs assert that Azuradisc is large enough to make sales in more than twenty countries around the world and sustain a branch office in New Zealand. While this fact may submit Azuradisc to personal jurisdiction in those countries, it has no bearing on whether this Court may exercise personal jurisdiction over Azuradisc.

Azuradisc contends that its connection with Illinois is of such a minimal extent that it should not reasonably have anticipated being haled into court. This Court must make two inquiries in determining whether jurisdiction exists over an out-of-state defendant, whether Illinois' long-arm statute permits the assertion of jurisdiction and whether assertion of personal jurisdiction violates due process. *Graphic Controls Corp. v. Utah Medical Products*, 149 F.3d 1382, 1385 (Fed.Cir.1998). As has been discussed, because this is a patent case, this Court must rely on the law of the Federal Circuit in its due process analysis of Defendants' contact with Illinois. *Akro Corp. v. Luker*, 45 F.3d 1541, 1543-44 (Fed.Cir.1995). "However, in interpreting the meaning of state long-arm statutes, [the Federal Circuit] elect[s] to defer to the interpretations of the relevant state and federal courts, including their determinations regarding whether or not such statutes are intended to reach to the limit of federal due process." *Graphic Controls*, 149 F.3d at 1386.

a. Azuradisc's volume of sales

Pursuant to the Illinois long-arm statute, a defendant is subject to jurisdiction of its courts if the defendant conducted the transaction of any business within the state. 735 ILCS 5/2-209(a)(1). Where jurisdiction is predicated upon subsection (a), only causes of action arising from the enumerated acts may be asserted against a nonresident defendant. 735 ILCS 5/2-209(f). In this case, Azuradisc points to its small percentage of sales, roughly one percent, in the state to support its claim that it cannot be

subject to this Court's jurisdiction. "However, no case has yet held that revenue derived from this State is the dispositive variable in resolving whether *in personam* jurisdiction may be asserted against a foreign corporation." *Hulsey v. Scheidt*, 630 N.E.2d 905, 909 (Ill.App.Ct.1994). See also *Rokeby-Johnson v. Derek Bryant Ins. Brokers, Ltd.*, 594 N.E.2d 1190 (Ill App.Ct.1992) (where the court found that the defendant may have earned \$5 million in Illinois of no consequence to its analysis of whether the defendant was "doing business" in the state); *Kadala v. Cunard Lines*, 589 N.E.2d 802 (Ill.App. Ct 1992) (where the court held that substantial revenues earned from extensive advertising in Illinois does not alone submit a foreign corporation to jurisdiction under the "doing business" test); *Dal Ponte v. Northern Manitoba Native Lodges, Inc.*, 581 N.E.2d 329 (Ill.App.Ct.1991) (where the court declined to find personal jurisdiction over a Canadian corporation which solicited customers at Illinois fishing shows and accepted reservations because its relationship with the state was occasional and casual); *Radosta v. Devil's Head Ski Lodge*, 526 N.E.2d 561 (Ill.App.Ct.1988) (where the court found that defendant's advertising in Illinois, maintaining an Illinois phone number, selling its services through local ski shops, purchasing billboard space in Illinois, and participating in annual exhibitions in Illinois were insufficient because defendant's presence in the state was occasional). "Rather than emphasizing the amount of the financial benefit it derives from the consumers of Illinois, the cases seem to indicate that the key consideration is the corporation's temporal relationship with the State." *Id.*

*10 In this case, there can be no doubt that Azuradisc has no temporal relationship with Illinois. Azuradisc is not licensed to do business in Illinois, nor does it have a registered agent in the state. Azuradisc does not own property or occupy any real or personal property in Illinois. Azuradisc does not maintain an Illinois telephone number. Finally, Plaintiffs have failed to demonstrate that the small percentage of Azuradisc's sales were made as the result of a continual rather than occasional transaction of business such that Azuradisc was "doing business" in the state. *Cook Assoc., Inc. v. Lexington United Corp.*, 429 N.E.2d 847, 852-53 (Ill.1981).

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Plaintiffs also rely on the fact that Azuradisc advertised in Illinois to support their contention that personal jurisdiction exists. Plaintiffs point to 7,625 flyers which were mailed to Illinois in a one year period. [FN6] However, these mailings are insufficient to constitute the transaction of business in Illinois. This is because advertising and revenue alone are not a sufficient basis for the exercise of long-arm jurisdiction. *Kadala*, 589 N.E.2d at 807. This is because in this state, a significant distinction between "the transaction of business *in* Illinois and the transaction of business *with* an Illinois [resident]" exists. *Id.* (citations omitted).

FN6. Between January 2000 and January 2001, Azuradisc sent 176,553 mailings to all fifty states, the District of Columbia, Guam and Puerto Rico. These mailings were sent by a direct mailing service company at Azuradisc's request.

[I]f the mere payment of money, shipment of goods into, or advertisement in Illinois were sufficient to confer long arm jurisdiction it would follow that the very existence of a business relationship with an Illinois resident would automatically sustain Illinois jurisdiction. It is clear that no federal or state court would confer such a broad grant of personal jurisdiction.

Id. (quoting *Braasch v. Vail Assoc., Inc.*, 370 F.Supp. 809, 814 (N.D.Ill.1973). "At best, advertising amounts only to solicitation, which ...is insufficient to submit a defendant to jurisdiction under the 'doing business' test postulated under section 2-209 of the long-arm statute." *Id.* (citing *Radosta*, 526 N.E.2d 561).

The fact that a defendant who solicits business in the State derives revenue from the State would seem to be implicit, even though not expressly discussed in the cases, as a natural result [of] successful solicitation, and not an independent factor upon which to determine that a non-resident corporation is "doing business" in the State. Moreover, defendant here did not receive any revenues in this state; all payments were received in its [Arizona] office. Accordingly, [this Court holds] that defendant is not "doing business" in Illinois so as to be amenable to [personal] jurisdiction.

Kadala 589 N.E.2d at 810.

b. Azuradisc's Internet presence
Defendants argue that their website, which is

accessible in Illinois, is also not sufficient to establish jurisdiction. They assert the Azuradisc website is a passive website which merely posts information over the Internet. More specifically, Azuradisc's website does not specifically invite Illinois residents to transact business with Azuradisc, instead, the website merely presents a general advertisement which is accessible worldwide. Plaintiff argues that because the website includes detailed descriptions of products and services, sales information, price lists, and toll free numbers, Defendants have sufficiently engaged with Illinois residents to warrant the exercise of jurisdiction.

*11 It is well-settled that "no court has ever held that an Internet advertisement alone is sufficient to subject a party to jurisdiction in another state. In each case where personal jurisdiction was exercised, there [was] something more to indicate that the defendant purposefully (albeit electronically) directed his activity in a substantial way to the forum state." *Vitullo v. Velocity Powerboats, Inc.*, No. 97 C 8745, 1998 WL 246152, at *5 (N.D. Ill. April 27, 1998) (quoting *Panavision Int'l, L.P. v. Toeppen*, 141 F.3d 1316, 1321 (9th Cir.1998)) (internal quotations omitted.) The general framework of decisions regarding personal jurisdiction as the result of an Internet site is based largely on a sliding scale approach that divides Internet activities into three categories. The first category consists of situations in which a defendant clearly does business over the Internet such that the websites "are clearly interactive, allowing the transaction of business between the end user and the website's owner." *Euromarket Designs, Inc. v. Crate & Barrel, Ltd.*, 96 F.Supp.2d 824, 837 (N.D.Ill.2000). This Court has personal jurisdiction over transactions such as these because the defendant "enters into contracts with residents of a foreign jurisdiction that involve the knowing and repeated transmission of computer files over the Internet." *Zippo Manufacturing Co. v. Zippo Dot Com. Inc.*, 952 F.Supp. 1119, 1123-24 (W.D.Pa.1997). The second category is a hybrid category, in which the websites are "somewhat interactive, however, not to the extent of the first category." *Euromarket*, 96 F.Supp.2d at 838 (citing *Maritz, Inc. v. Cybergold, Inc.*, 947 F.Supp. 1328 (E.D.Mo.1996)). This is because the website "is occupied by interactive Web sites where a user can exchange information with the host computer. In these cases, the exercise of

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jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the Web site." *Zippo*, at 1124. Finally, the third category deals with passive websites "where a defendant has simply posted information on an Internet Web site which is accessible to users in foreign jurisdictions. A passive Web site that does little more than make information available to those who are interested in it is not grounds for the exercise of personal jurisdiction." *Id.*

After considering Azuradisc's website under the sliding scale approach, it is clear that it is insufficient to subject it to this Court's personal jurisdiction. Plaintiffs claim that Azuradisc's website contains detailed product and service descriptions with toll-free numbers and advertising. The site also allows prospective clients to contact Azuradisc via e-mail. However, Plaintiffs admit that no orders can be placed directly from the website. In cases where a user can exchange information with the host computer, "the exercise of jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the Web site." *Zippo*, 962 F.Supp. at 1124. In this case, Plaintiffs have failed 'to allege facts to support a reasonable inference that electronic mail communications were made with Illinois residents, or that the communications were of the quality required by courts who have found personal jurisdiction in cases of this kind." *Transcraft Corp. v. Doonan Trailer Corp.*, No. 97 4943, 1997 WL 733905, at *9 (N.D.Ill. Nov. 17, 1997). The website allows no business transactions to be performed in terms of payment, placing of orders, etc. It merely posts information and requires that customer inquiries be performed by telephone or electronic mail. Furthermore, "national advertisements (including those on the Internet) are insufficient to subject a defendant to jurisdiction in Illinois." *Id.* (citing *IDS*, 958 F.Supp. at 1268)). In order for Defendants to be subject to this Court's jurisdiction, Plaintiffs must establish evidence that Defendants intended their Internet advertisements to reach Illinois in particular. *Hasbro, Inc. v. Clue Computing, Inc.*, 994 F.Supp. 34, 41 (D.Mass.1997). Plaintiffs have failed to establish such evidence. Accordingly, this Court cannot find that Defendants were purposefully serving an Illinois market and the website cannot be used to establish jurisdiction. *Transcraft*, 1997 WL

733905, at 810.

C. Lack of Proper Venue

*12 Defendant argues in the alternative that if personal and subject matter jurisdiction were found, this Court should transfer the case to Arizona based on improper venue. Plaintiffs assert that venue is proper under 28 U.S.C. § 1391, and cites a Federal Circuit case which allows for venue if personal jurisdiction is found over Defendants. *North American Phillips Corp. v. American Vending Sales, Inc.* 35 F.3d 1576, 1577 n. 1 (Fed.Cir.1994). However, this Court has determined that it lacks personal jurisdiction over Defendants, therefore, the motion to transfer is dismissed as moot.

CONCLUSION

For the foregoing reasons, Defendants' Motion to Dismiss for Lack of Jurisdiction (doc. # 4) is GRANTED. Defendants' Motion to Transfer for Improper Venue (doc. # 4) is DISMISSED as moot. This case is accordingly DISMISSED.

IT IS SO ORDERED.

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. 2001 WL 34667234 (Trial Pleading) Complaint
(Mar. 22, 2001)

.1:01CV02038(Docket)
(Mar. 22, 2001)

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Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court,
 N.D. Illinois, Eastern Division.
 INFOSYS INC., an Illinois corporation, Plaintiff,
 v.
 BILLINGNETWORK.COM, INC., a Florida
 corporation, Defendant.
 No. 03 C 3047.

Aug. 27, 2003.

Todd Sheldon Parkhurst, Charles Lincoln Philbrick
 , Holland & Knight LLC, Chicago, IL, for Plaintiff.

Jeffrey A. Schulman, Wolin and Rosen, Chicago,
 IL, John M. Adams, Thomas Michael Joseph, Price
 & Adams, Pittsburgh, PA, for Defendant.

MEMORANDUM OPINION AND ORDER

ZAGEL, J.

*1 Defendant Billingnetwork.com, Inc. ("BNC") is a Florida-based company that offers an Internet-based billing system to doctors, medical practices, hospitals, and other companies that provide medical billing services. On October 20, 1999, BNC filed a patent application in the name of two BNC employees for its Internet-based medical billing system known as "DirectAccess." On April 16, 2002, U.S. Patent No. 6,374,229 ("the '229 patent") was issued on this application. While this application was pending, many Internet-based medical billing systems were developed by other companies, including plaintiff InfoSys, Inc.

On or about October 29, 2002, BNC learned that InfoSys was selling its own Internet-based medical billing system. On March 16, 2003, BNC sent InfoSys an offer to enter into a license agreement under the '229 patent. After receiving a telephone message from an InfoSys employee, BNC instructed its attorneys to send InfoSys a follow-up letter on April 28, 2003. Further correspondence between the parties then ensued followed by InfoSys filing a Complaint for a declaratory judgment of the '229 patent against BNC on June 10, 2003. BNC now moves to dismiss this action for lack of subject

matter jurisdiction, lack of personal jurisdiction, and improper venue under Federal Rules of Civil Procedure 12(b)(1), 12(b)(2), and 12(b)(3). [FN1]

FN1. InfoSys's Motion for Leave to File a Sur-Reply is granted, but the Sur-Reply does not affect my decision regarding personal and subject matter jurisdiction.

Personal Jurisdiction

In order to defeat BNC's motion to dismiss for lack of personal jurisdiction, InfoSys need only establish a prima facie case of personal jurisdiction over BNC. *Euromarket Designs, Inc. v. Crate & Barrel Ltd.*, 96 F.Supp.2d 824, 833 (N.D.Ill.2000). In patent infringement cases, Federal Circuit law controls, even in determining the question of whether to exercise personal jurisdiction over out-of-state defendants. *Hildebrand v. Steck Mfg. Co.*, 279 F.3d 1351, 1354 (Fed.Cir.2002). The Court also applies Federal Circuit law in personal jurisdiction inquiries over out-of-state patentees in declaratory judgment actions. *Id.*

The analysis for determining whether personal jurisdiction exists is a two-step inquiry. *Id.* First, the defendant must be amenable to service of process under the appropriate state long-arm statute. *Id.* Second, I must determine that the defendant's activities within the forum state satisfy the minimum contacts requirement of the due process clause. *Hildebrand*, 279 F.3d at 1354. In this case, the Illinois long-arm statute authorizes the exercise of personal jurisdiction to the fullest extent authorized under the United States Constitution and the Illinois Constitution. *Facilitec Corp. v. Grease Stopper, Inc.*, No. 01 C 2971, 2002 WL 226758, at *2 n. 1 (N.D.Ill. Feb.13, 2002). Because of this, "the statutory analysis collapses into a due process inquiry, and [I] need not consider whether defendants engaged in any of the acts enumerated in the long-arm statute." *LFG, LLC v. Zapata Corp.*, 78 F.Supp.2d 731, 735 (N.D.Ill.1999).

*2 For an exercise of personal jurisdiction to satisfy due process, the defendant must have minimum contacts with the forum such that maintenance of the suit does not offend "traditional notions of fair play and substantial justice." *International Shoe Co. v.*

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Washington, 326 U.S. 310, 316, 66 S.Ct. 154, 90 L.Ed. 95 (1945). This determination depends on whether the plaintiff asserts general or specific jurisdiction against the defendant. "General jurisdiction ... is for suits neither arising out of nor related to the defendant's contacts, and it is permitted only where the defendant has 'continuous and systematic general business' contact with the forum." *RAR, Inc. v. Turner Diesel, Ltd.*, 107 F.3d 1272, 1277 (7th Cir.1997). Specific jurisdiction, on the other hand, refers to jurisdiction over a defendant in a suit "arising out of or related to the defendant's contacts with the forum." *Helicopteros Nacionales de Colombia, S.A. v. Hall*, 466 U.S. 408, 414 n. 8, 104 S.Ct. 1868, 80 L.Ed.2d 404 (1984).

In the instant case, the Complaint contains no direct allegation that the Court may exercise personal jurisdiction, either general or specific, over BNC as a non-resident defendant. Plaintiff merely refers to venue, stating that "[v]enue is proper in this District pursuant to 28 U.S.C. § 1391(b)(2)." BNC maintains that this Court has neither general nor specific jurisdiction over it. In response, InfoSys argues that BNC has subjected itself to personal jurisdiction of this Court—either general or specific—by virtue of its purposeful and continuous sales efforts in Illinois through its interactive website and national marketing campaigns directed at the healthcare industry.

General Jurisdiction

A website can be a purposeful contact with the forum state for purposes of general jurisdiction. *Euromarket Designs, Inc.*, 96 F.Supp.2d at 837. An exercise of personal jurisdiction is proper where a defendant clearly does business with residents of the forum state over the Internet, *i.e.*, the website is "interactive." *Zippo Mfg. Co. v. Zippo Dot Com, Inc.*, 952 F.Supp. 1119, 1124 (W.D.Pa.1997).

In weighing the issue of personal jurisdiction in the context of the Internet, courts typically use a sliding scale analysis to ascertain what level of Internet interaction subjects a defendant to personal jurisdiction.... The analysis consists of three levels: (1) where the defendant conducts business over the Internet through its active website; (2) where the defendant maintains an interactive website; and (3) where the defendant maintains a passive website.

...

The first category [level 1] consists of situations where a defendant clearly does business over the Internet. If the defendant enters into contracts with residents of a foreign jurisdiction ... over the Internet, personal jurisdiction is proper....

Websites in this category are interactive and allow for [a] transaction between the user and the website owner.

...

The second category [level 2] is occupied by interactive websites where a user can exchange information with the host computer. In these cases, the exercise of jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the website.

*3 ...

The final category [level 3] consists of situations where a defendant has simply posted information on an Internet website which is accessible to users in foreign jurisdictions. A passive website that does little more than make information available to those who are interested in it is not grounds for the exercise of personal jurisdiction.

This Court has addressed this issue in *Aero Products Int'l, Inc. v. Intex Corp.*, No. 02 C 2590, 2002 WL 31109386, at *5 (N.D.Ill. Sept.20, 2002) (internal quotation marks and citations omitted).

Here, InfoSys argues that BNC's website is sufficiently interactive to confer either general or specific jurisdiction. Although the website is clearly not a level 1 website because it does not include an area where potential customers can enter into a contract with BNC over the Internet, it does have a high "level of interactivity" that is of a high "commercial nature." *Aero Prods. Int'l, Inc.*, 2002 WL 31109386, at *5. First, the company's name of "Billingnetwork.com, Inc." indicates that the website plays an integral role in the business and thus has a highly commercial nature. In addition, the website states that personal information from potential clients for BNC's Internet billing system known as "DirectAccess" can be collected from "registration forms, product order information, and other web forms." Furthermore, although "DirectAccess" clients cannot enter into a contract exclusively through the website, the website does profess that one can become a client online and that "all enrollment and training can be accomplished online." Even if this is not the case, however, the process for becoming a "DirectAccess" client can at

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least be initiated through an exchange of information via the website, and, once under contract, clients may use the website as the primary means for implementing the product and training new users.

In addition to marketing "DirectAccess" for purchase online and initiating client relationships, the website solicits non-customers to become "partners" with BNC. The website describes these partnerships as "strategic relationships with other billing centers and companies who operate in the healthcare industry," and the intent for forming them is "to create new opportunities and new customers for BillingNetwork and our partners." Accordingly, these partnerships have a strong commercial nature. Anyone interested in becoming a BNC "partner" may enroll with BNC directly from the Partners page of the website, and thus there is interconnectivity of a commercial nature.

The website also solicits software resellers, medical sales representatives, and practice management consultants to join its "network of qualified Value Added Resellers (VARs)." Anyone interested in doing so is invited to fill out an online form to join. Therefore, we have more interconnectivity of a commercial nature. Finally, there are other interconnectivity features but of a lesser commercial nature; the website offers an opportunity to subscribe to its periodic newsletter, and, on a separate page for investors, the website invites potential investors to fill out a form for more information "about investment opportunities" in the company.

*4 In the end, whether the BNC website is sufficiently interactive to confer general jurisdiction by itself is, to say the least, a close call. On the one hand is a line of cases in which courts found that comparable sites did not confer jurisdiction. [FN2] On the other hand is an equally strong line of cases in which courts found that comparable sites did confer jurisdiction. [FN3] In the final analysis, BNC makes the determinative point when it cites to *Watchworks, Inc. v. Total Time, Inc.*, No. 01 C 5711, 2002 WL 424631, at *6 (N.D.Ill. Mar.19, 2002) for the observation that cases conferring jurisdiction partly on the basis of Internet activity "reflect that personal jurisdiction is typically determined based not only on the defendant's Internet activities but also on its non-Internet activities." [FN4] In contrast to these situations, the

Watchworks Court found no jurisdiction because the plaintiff provided evidence only of an employee and its investigator accessing the website and no evidence of other Illinois residents accessing the website or requesting that it be placed on defendant's mailing list. 2002 WL 424631, at *6 note 8. In sum, there is no case where general jurisdiction was conferred on the basis of an interactive website in the absence of non-website factors evidencing intent for a defendant's product or website to reach a particular state.

FN2. See *Haemoscope Corp. v. Pentapharm AG*, No. 02 C 4261, 2002 WL 31749195 (N.D.Ill.Dec.9, 2002) (finding no jurisdiction on the basis of a website that allowed users to request additional product information from the site, but then informed the user that the allegedly infringing device was not yet available in Illinois); *Haggerty Enters., Inc. v. Lipan Indus. Co., Ltd.*, No. 00 C 766, 2001 WL 968592, at *6 (N.D.Ill. Aug.23, 2001) (finding no jurisdiction on the basis of a website that listed no prices and did not offer direct sales, but did allow the user to contact the defendant through its website to obtain further information); *LaSalle Nat'l Bank v. Vitro, Sociedad Anonima de Capital Variable*, 85 F.Supp.2d 857, 862 (N.D.Ill.2000) (finding no jurisdiction on the basis of a website that did not allow for direct sales, but did offer users access to on-line catalogs and gave them the ability to interact directly with defendant's customer service representatives).

FN3. See *Publications Int'l, Ltd. v. Burke/Triolo, Inc.*, 121 F.Supp.2d 1178, 1183 (N.D.Ill.2000) (finding jurisdiction on the basis of a hybrid website which it found to be highly commercially interactive because, after requesting a catalog through the website, users received defendant's catalog and could place orders); *LFG, LLC v. Zapata Corp.*, 78 F.Supp.2d 731 (N.D.Ill.1999) (finding jurisdiction on the basis of an Internet website portal, directing users to other websites through interactive dialogue and through which Illinois users were invited to place themselves on defendant's mailing list); *Maritz, Inc. v. Cybergold, Inc.*, 947 F.Supp. 1328 (E.D.Mo.1996) (finding jurisdiction on the basis of a website providing information about a forthcoming electronic mailing list service that would forward to users advertisements that matched their selected interests).

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FN4. See *Publications Int'l, Ltd.*, 121 F.Supp.2d at 1182-83 (finding that the defendant had extensively distributed the allegedly infringing materials in Illinois); *LFG, LLC*, 78 F.Supp.2d at 736-37 (not only emphasizing that the defendant's website was actually an Internet portal but also that 25 Illinois residents requested to be placed on the defendant's mailing list); *Maritz, Inc.*, 947 F.Supp. 1328 (finding the defendant's website had been accessed at least 311 times in Missouri, the state in which personal jurisdiction was at issue).

Here, assuming *arguendo* that InfoSys can establish the minimal level of interactivity of the BNC website that is sufficient to establish that the website is a hybrid (level 2) website, general jurisdiction does not exist because of the absence of any non-website activities by BNC. InfoSys claims that BNC marketed its website in Illinois and nationwide through its advertisements and listings on several Internet directories that position the website as a source for medical billing solutions, but these Internet advertisements and accompanying Internet-based publicity are insufficient in connection with the hybrid website to establish personal jurisdiction. Generally, national advertisements (including those on the Internet) are insufficient to subject a defendant to jurisdiction in Illinois. *Aero Products Int'l, Inc.*, 2002 WL 31109386, at *7. There must be evidence that the defendant intended its advertisements to reach a particular state. *Id.* Here, InfoSys has cited no evidence indicating that BNC has specifically directed its Internet based advertisements into Illinois or targeted its website at Illinois residents, just as there was no such evidence in *Aero Products Int'l, Inc.* In addition, InfoSys has not offered evidence that BNC had Illinois clients, potential Illinois clients such as in *LFG, LLC*, or even any Illinois visitors to the website as in *Maritz*. All InfoSys has is BNC's alleged national advertising, but "[t]he placement of a product into the stream of commerce, without more, is not an act of the defendant purposefully directed toward the forum State." *Id.* at *6 (quoting *Asahi-Metal Indus. Co. v. Superior Court*, 480 U.S. 102, 112, 107 S.Ct. 1026, 94 L.Ed.2d 92 (1987)). Accordingly, because of the absence of any non-website factors in conjunction with the arguably hybrid website, general jurisdiction is not appropriate in this case.

Specific Jurisdiction

*5 As mentioned above, specific jurisdiction is appropriate when the plaintiff's claim is related to or arises out of defendant's contacts within the state. *Helicopteros Nacionales de Colombia, S.A.*, 466 U.S. at 414 n. 8. For specific jurisdiction, the Federal Circuit has established a three-prong test that must be satisfied: (1) whether the defendant purposefully directed its activities at the residents of the forum; (2) whether the claim arises out of or is related to those activities; and (3) whether assertion of personal jurisdiction is reasonable and fair. *HollyAnne Corp. v. TFT, Inc.*, 199 F.3d 1304, 1307 (Fed.Cir.1999). InfoSys asserts specific jurisdiction based on the website, but, once again, there are no allegations, as *Aero Prods. Int'l, Inc.*, that BNC's website was specifically targeted at Illinois residents or that Illinois residents had initiated any actual or potential business relationships with BNC due to visiting the website. 2002 WL 31109386, at *6- 7. Accordingly, InfoSys cannot satisfy the first prong of the *HollyAnne* test and therefore specific jurisdiction is also not appropriate in this case.

Subject Matter Jurisdiction

Along with the lack of personal jurisdiction, BNC argues that this Court cannot exercise subject matter jurisdiction over this dispute because there is no "actual controversy" as required under the Declaratory Judgment Act, 28 U.S.C. § 2201. See *Spectronics Corp. v. H.B. Fuller Co.*, 940 F.2d 631, 634 (Fed.Cir.1991). To establish an "actual controversy" in a patent invalidity declaratory action, (1) there must be an explicit threat or action by the patentee, which creates a reasonable apprehension on the part of the declaratory judgment plaintiff that it will face an infringement suit, and (2) plaintiff must actually have either produced the device or have prepared to produce the device. *Arrowhead Indus. Water, Inc. v. Ecolchem*, 846 F.2d 731, 736 (Fed.Cir.1988); see also, *Spectronics Corp.*, 940 F.2d at 632. The test for whether a defendant's conduct creates a reasonable apprehension is a "totality of the circumstances" test. *Shell Oil Co. v. Amoco Corp.*, 970 F.2d 885, 888 (Fed.Cir.1992).

Here, the totality of the circumstances does not indicate that BNC's actions constituted a threat of litigation which created a reasonable apprehension of an infringement suit. At the onset, the test for reasonable apprehension is an objective test. *Indium*

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Corp. of America v. Semi-Alloys, Inc., 781 F.2d 879, 883 (Fed.Cir.1985). The test therefore requires more than the nervous state of mind of a possible infringer; it requires that the objective circumstances support such an apprehension. *Phillips Plastic Corp. v. Kato Hatsujou Kabushiki Kaisha*, 57 F.3d 1051, 1053-54 (Fed.Cir.1995). A purely subjective apprehension is insufficient to satisfy the actual controversy requirement. *Indium Corp. of America*, 781 F.2d at 883. Therefore, the subjective beliefs of InfoSys employees and clients as to whether litigation would be initiated-- and even to what extent they believed this--is entirely irrelevant.

*6 Regarding BNC's objective conduct, it is black letter law that merely offering a license does not create a reasonable apprehension. *Phillips Plastic Corp. v. Kato Hatsujou Kabushiki Kaisha*, 57 F.3d 1051, 1053 (Fed.Cir.1995). Threats of litigation within the context of license negotiations also do not create a reasonable apprehension. *Shell*, 970 F.2d at 887. In *Shell*, the following circumstances occurred:

[b]efore the meeting ended, offers were again made and rejected. Shell indicated that the parties were at an impasse and that litigation appeared likely. Oliver questioned whether Shell could file a declaratory judgment action since Shell was not manufacturing its catalyst. Vance responded that Shell was manufacturing the catalyst and asked, "I assume you will enforce your patent?" A representative of Amoco replied, "Yes," and the meeting ended.

Id. *Shell* held that the patentee's statements that the alleged infringer's activities "fall within," are "covered by," and are "operations under" the patent did not create a reasonable apprehension. *Id.* at 889.

Here, InfoSys's main support for the purported threats of litigation are a couple of letters and some follow-up phone calls. However, the letters include no explicit or implicit threat of litigation and clearly state that there are merely offers to take a license. For example, the March 16, 2003 letter also includes the following language:

We are not charging you with infringement of the patent, but are bringing the patent to your attention so that you may consider licensing the patent to avoid a potential conflict with the patent. We are offering to license the patent on a non-exclusive basis for a modest royalty.

In addition, the follow-up phone calls in reference

to the letters do not create a reasonable apprehension because they were made within the context of license negotiations. *Shell*, 970 F.2d at 887. Accordingly, InfoSys's assertion that BNC has made threats against it is without support in fact or law. BNC has not engaged in any extraordinary or threatening conduct by merely sending letters and/or making telephone calls to InfoSys or its customers in which it used language that was either identical or very similar to the language used in *Shell*. Therefore, subject matter jurisdiction does not exist. [FN5]

FN5. Having found that there is no basis for either personal jurisdiction or subject matter jurisdiction, it is unnecessary to consider whether venue is proper.

For the reasons above, BNC's Motion to Dismiss and InfoSys's Motion for Leave to File a Sur-Reply are GRANTED.

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Motions, Pleadings and Filings (Back to top)

. 2003 WL 23798687 (Trial Motion, Memorandum and Affidavit) Defendant's Reply to Plaintiff's Response to Defendant's Motion to Dismiss (Aug. 07, 2003)

. 2003 WL 23798674 (Trial Motion, Memorandum and Affidavit) Plaintiff's Response to Defendant's Motion to Dismiss (Jul. 24, 2003)

. 2003 WL 23798659 (Trial Pleading) Complaint (Jun. 10, 2003)

. 1:03CV03947(Docket)
(Jun. 10, 2003)

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2004 WL 742096 (N.D.Ill.)
(Cite as: 2004 WL 742096 (N.D.Ill.))

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Motions, Pleadings and Filings

Only the Westlaw citation is currently available.

United States District Court,
N.D. Illinois, Eastern Division.
OLD REPUBLIC INSURANCE COMPANY,
Plaintiff,
v.
NESS, MOTLEY, LOADHOLT, RICHARDSON
& POOLE, P.A.; Richardson, Patrick,
Westbrook & Brickman, LLC; H. Blair Hahn;
Michael J. Brickman; Terry E.
Richardson, Jr.; Interclaim Holdings, Ltd;
Interclaim Recovery, Ltd; and Twin
City Fire Insurance Company, Defendants.
No. 03 C 5238.

April 6, 2004.

Karen L. Levine, Steven J. Ciszewski, Novack &
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Andrew Theodore Staes, Jeffrey Neal Cole,
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Emery, Gregory Campbell Jones, John R.
McCambridge, Laura K. McNally, Grippo & Elden,
Samuel Bayard Isaacson, Douglas Warren Hyman,
Elizabeth Rebecca Bacon Ehlers, Piper Rudnick
LLP, Chicago, IL, for Defendants.

Michael A. Pope, Aron J. Frakes, McDermott,
Will & Emery, Chicago, IL, for Counter-Claimant.

MEMORANDUM AND ORDER

MANNING, J.

*1 Plaintiff Old Republic Insurance Company ("Old Republic") brings this declaratory judgment action based on diversity jurisdiction. Before the court is defendants Richardson, Patrick, Westbrook & Brickman, LLC ("Richardson Patrick"), H. Blair Hahn, and Michael J. Brickman's Motion to Transfer Venue pursuant to 28 U.S.C. § 1404(a). In addition, defendant Terry E. Richardson, Jr. moves to dismiss the First Amended Complaint for lack of personal jurisdiction pursuant to Federal Rule of Civil Procedure 12(b)(2). For the reasons that follow, both motions are denied.

I. BACKGROUND AND PARTIES

The relief Old Republic seeks in this declaratory judgment action stems from a judgment entered against the now defunct law firm of Ness, Motley, Richardson & Poole, P.A. ("Ness Motley"). See *Interclaim Holdings, Ltd. v. Ness, Motley, Loadholt, Richardson & Poole*, 2001 WL 1313799 (N.D.Ill. Oct.29, 2001) (hereinafter "Underlying Action"). Defendants Interclaim Holdings, Ltd. and Interclaim Recovery, Ltd. (collectively "Interclaim") filed the Underlying Action against Ness Motley alleging that Ness Motley engaged in wrongdoing in connection with its representation in the prosecution of certain class action claims that took place in the Circuit Court of Madison County, Illinois. The jury in the Underlying Action found Ness Motley breached its fiduciary duty and the parties' retainer agreement and awarded Interclaim \$8.3 million in compensatory damages and \$27.7 million in punitive damages. [FN1] The individual defendants in the present action are now members of and are practicing law with defendant Richardson Patrick, a South Carolina limited liability company. At issue are the excess professional liability policies Old Republic issued to Ness Motley and its individual attorneys. In this action, Old Republic seeks a determination that it has no duty to defend, indemnify, or reimburse defense costs or make indemnity payments to the defendants because the defendants failed to disclose the Underlying Action as required when applying for their excess professional liability insurance coverage.

FN1. Recently, Ness Motley filed a motion for a new trial, judgment as a matter of law, and remittur, which the district court denied. See *Interclaim Holdings, Ltd. v. Ness, Motley, Loadholt, Richardson & Poole*, 298 F.Supp.2d 746 (N.D.Ill.2004).

II. MOTION TO TRANSFER VENUE

The defendants seek to transfer this action to the United States District Court for the District of South Carolina, Charleston Division, pursuant to 28 U.S.C. § 1404(a), which provides that "[f]or the convenience of the parties and witnesses, in the interests of justice, a district court may transfer any civil action to any other district or division where it

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might have been brought." Under § 1404(a), the party seeking transfer must demonstrate that: (1) venue is proper in both the transferor and transferee courts; (2) transfer will serve the convenience of the parties and witnesses; and (3) transfer will promote the interests of justice. *See Coffey v. Van Dorn Iron Works*, 796 F.2d 217, 219 n. 3 (7th Cir.1986); *Amoco Oil Co. v. Mobil Oil Corp.*, 90 F.Supp.2d 958, 959-60 (N.D.Ill.2000). "The weighing of factors for and against transfer necessarily involves a large degree of subtlety and latitude, and therefore, is committed to the sound discretion of the trial judge." *See Coffey*, 796 F.2d at 219. The movant "has the burden of establishing, by reference to particular circumstances, that the transferee forum is clearly more convenient" than the transferor court. *Id.* at 219-20.

*2 Here, it is undisputed that venue is proper in both the Northern District of Illinois and the District of South Carolina, therefore, the court turns to whether transfer will serve the convenience of parties and witnesses and promote the interests of justice.

A. Convenience of Parties and Witnesses

When evaluating the convenience of the witnesses and parties, also known as the "private interests" factors, the court analyzes four separate considerations: (1) the plaintiff's choice of forum; (2) the site of material events; (3) the availability of evidence in each forum; and (4) the convenience to the parties and witnesses of litigating in the respective forums. *See IP Innovation, LLC v. Lexmark Int'l, Inc.*, 289 F.Supp.2d 952, 954 (N.D.Ill.2003). First, the court gives substantial weight to Old Republic's choice of forum, especially because it is the plaintiff's home forum. *See Piper Aircraft Co. v. Reyno*, 454 U.S. 235, 255-56, 102 S.Ct. 252, 70 L.Ed.2d 419 (1981); *United Air Lines, Inc. v. Mesa Airlines, Inc.*, 8 F.Supp.2d 796, 798 (N.D.Ill.1998). Second, the defendants concede that given the realities of modern technology and in the absence of any unusual circumstances, it is unlikely that the ease of access to sources of proof will be significantly different in Illinois or South Carolina. The court thus considers the remaining "private interests" factors--the site of the material events and the convenience of the witnesses and parties.

As for the site of the material events, the court notes that the trial and entry of judgment against Ness Motley in the Underlying Action occurred in the Northern District of Illinois. In fact, Ness Motley filed the underlying class action suit that formed the basis for the professional liability claims in Madison County, Illinois. In addition, the initial excess professional liability insurance application was submitted to Old Republic's Chicago offices and was underwritten by the Chicago office. Ness Motley applied for the second Old Republic insurance policy to Old Republic's Chicago office, again where the policy was underwritten. Also, the defendants reported the Underlying Action to the Old Republic Chicago office. Both the Richardson Patrick individual defendants and Ness Motley demanded their indemnity coverage under the Old Republic insurance policies by letter directed to Old Republic at its Chicago office. Finally, the defendants filed a Counterclaim against Old Republic in which Counts II and III assert claims against Old Republic for improper insurance claims handling practices. The handling of these claims was done in Old Republic's Chicago offices.

On the other hand and without any substantiation, the defendants argue that the insurance policies were issued in South Carolina and that some of the acts of the alleged professional liability occurred there. These cursory assertions alone do not amount to a "significant portion of the events" occurring in South Carolina as the defendants claim. Therefore, the defendants have failed to establish that this factor weighs in favor of transfer. *See Coffey*, 796 F.2d at 219-20.

*3 With respect to the convenience of the parties, the court recognizes that it is easier for each party to litigate on its home turf, and thus, this factor does not weigh in either party's favor. The proper consideration of the witnesses' convenience requires the parties to identify with some specificity the witnesses it intends to call as well as the general content of their proposed testimony. *See Allied Van Lines, Inc. v. Aaron Transfer & Storage, Inc.*, 200 F.Supp.2d 941, 946 (N.D.Ill.2002) (convenience of witnesses not relevant if parties fail to produce witness lists); *see also Brandon Apparel Group, Inc. v. Quitman Mfg. Co., Inc.*, 42 F.Supp.2d 821, 834 (N.D.Ill.1999) (court cannot consider convenience of unidentified witnesses). Here, the defendants have not produced a witness list and admit that it is

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difficult to determine the identity of many of its witnesses at this procedural posture. Old Republic, on the other hand, has identified two non-party witnesses and the nature of their testimony via affidavit. Both named plaintiff witnesses reside in Illinois. In view of Old Republic's witnesses residing in Illinois and without more concrete information from the defendants, the defendants have not established that this factor weighs in favor of transfer, that is, that transferring this action to the District of South Carolina is "clearly more convenient." *See Coffey*, 796 F.2d at 219-20.

B. Interests of Justice

The interests of justice inquiry involves judicial economy, not the private interests of the litigants or witnesses. *See Amoco Oil*, 90 F.Supp.2d at 961. Thus, this inquiry focuses on: (1) the court's familiarity with the applicable law; (2) the forum's relationship with the cause of action; and (3) the congestion of the respective court dockets and the prospects of an earlier trial. *See id.* at 961-62; *see also IP Innovation*, 289 F.Supp.2d at 955. Old Republic concedes that both Illinois and South Carolina have an interest in this dispute, making this factor neutral. Thus, the court turns to the applicable law and court congestion factors.

The defendants assert that South Carolina substantive law will most likely be applied to resolve this action. Specifically, the defendants claim that under S.C.Code Ann. § 38-61-10, all insurance contracts on property, lives, or interests in South Carolina are considered to be made in South Carolina and are subject to the laws of South Carolina. On the other hand, as Old Republic correctly notes, under the *Erie* doctrine, a federal court exercising diversity jurisdiction must apply the choice of law rules of the state in which it sits, in this case Illinois. *See Klaxon Co. v. Stentor Elec. Mfg. Co.*, 313 U.S. 487, 496, 61 S.Ct. 1020, 85 L.Ed. 1477 (1941); *FDIC v. Wabick*, 335 F.3d 620, 625 (7th Cir.2003).

Regardless of the controlling substantive law, federal courts frequently decide substantive legal questions based on the laws of different states in diversity jurisdiction actions. *See Brandon Apparel Group*, 42 F.Supp.2d at 835. As such, either district court would be able to fully analyze and decide this case based on an insurance coverage dispute

regardless of whether Illinois or South Carolina law applies. Therefore, this factor does not weigh in favor of either forum.

*4 With regard to the respective congestion of the court dockets and an earlier trial date, the court examines the median months it takes each forum to dispose of a case and the median months from filing to trial. *See id.* The most recent statistics from the Administrative Office of the United States Courts show that the median civil case in Northern District of Illinois is disposed of 5.5 months after filing, whereas in the District of South Carolina it is 8.2 months after filing. On the other hand, the median civil case goes to trial faster in the District of South Carolina than in the Northern District of Illinois. Because the statistics are split between the two districts, this factor is neutral.

In sum, after carefully weighing the private and public interests, the court concludes that the defendants have not demonstrated that transferring this action to the District of South Carolina is clearly more convenient because a majority of the factors weigh against transfer or are neutral. Therefore, the court, in its discretion, denies the defendants' Motion to Transfer this action to the District of South Carolina, Charleston Division.

IV. MOTION TO DISMISS--PERSONAL JURISDICTION

A Rule 12(b)(2) Standard

Terry E. Richardson, Jr. moves this court to dismiss the First Amended Complaint against him based on the court's lack of personal jurisdiction. In ruling on a motion to dismiss pursuant to Federal Rule of Civil Procedure 12(b)(2), the court may consider matters outside the pleadings, such as affidavits submitted by the parties. *See Purdue Research Found. v. Sanofi-Synthelabo, S.A.*, 338 F.3d 773, 782 (7th Cir.2003); *RAR, Inc. v. Turner Diesel, Ltd.*, 107 F.3d 1272, 1275 (7th Cir.1997). When a district court determines a defendant's Rule 12(b)(2) motion based on the submission of written materials, without holding an evidentiary hearing, the plaintiff must make a *prima facie* case of personal jurisdiction. *See Purdue Research Found.*, 338 F.3d at 782-83 (citations and quotations omitted). In making the determination whether the *prima facie* standard has been satisfied, courts must

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resolve all disputes concerning relevant facts in favor of the plaintiff. *See id.* Ultimately, the plaintiff bears the burden of establishing that personal jurisdiction over the defendant exists. *See Claus v. Mize*, 317 F.3d 725, 727 (7th Cir.2003).

Where the court's subject matter jurisdiction stems from diversity of citizenship, as in this case, the court may assert personal jurisdiction over a defendant only if personal jurisdiction would be proper in an Illinois court. *See Hyatt Int'l Corp. v. Coco*, 302 F.3d 707, 713 (7th Cir.2002). Accordingly, the court looks to the Illinois long-arm statute which contains a "catch-all" provision allowing Illinois state courts to assert personal jurisdiction to the maximum extent permitted by the Illinois and United States Constitutions. *See* 735 ILCS 5/2-209(c); *see also Hyatt*, 302 F.3d at 714. While the Illinois and United States Constitutions do not contain the exact same due process guarantees, the Seventh Circuit has stated that "there is no operative difference between the limits imposed by the Illinois Constitution and the federal limitations on personal jurisdiction." *Hyatt*, 302 F.3d at 715. Thus, the court collapses its inquiry into one--whether asserting personal jurisdiction over Richardson complies with federal due process protections. *See id.* (under catch-all provision courts turn directly to constitutional inquiry).

B. Minimum Contacts

*5 Federal due process requires that a nonresident defendant have "minimum contacts" with the forum state and that the nonresident defendant "purposefully availed itself" of the privilege of conducting activities within the forum state. *See Hanson v. Denckla*, 357 U.S. 235, 253, 78 S.Ct. 1228, 2 L.Ed.2d 1283 (1958); *International Shoe Co. v. Washington*, 326 U.S. 310, 315, 66 S.Ct. 154, 90 L.Ed. 95 (1945). The "purposeful availment" requirement ensures that a nonresident defendant will not be forced to litigate in a jurisdiction as a result of random contacts with the forum or the unilateral activity of another party. *See Burger King v. Rudzewicz*, 471 U.S. 462, 474-75, 105 S.Ct. 2174, 85 L.Ed.2d 528 (1985).

A court's exercise of personal jurisdiction over a defendant may be either general or specific. *See Hyatt*, 302 F.3d at 716. Here, Old Republic contends that this court has specific jurisdiction over

Richardson. Specific jurisdiction allows a court to exercise personal jurisdiction over a nonresident defendant for forum-related activities if the relationship between the defendant and the forum falls within the traditional *International Shoe* minimum contacts paradigm. *See Purdue Research Found.*, 338 F.3d at 780. Therefore, the court will examine the contacts that Richardson had with Illinois as they relate to Old Republic's cause of action seeking a declaratory judgment pertaining to the two excess professional liability insurance policies. [FN2]

FN2. Old Republic also argues that this court has specific jurisdiction pursuant to the tortious act clause of the Illinois long-arm statute. *See* 735 ILCS 5/2-209(a)(2). Under this provision, a court may exercise jurisdiction over nonresident defendants "as to any cause of action arising from" the commission of a tortious act within the State. Because Old Republic failed to allege that Richardson committed any tortious acts in Illinois, this clause does not confer jurisdiction over Richardson. *See General Accident Ins. Co. v. Old Republic Int'l Corp.*, 648 F.Supp. 634, 637 (N.D.Ill.1986) (if no tortious acts alleged, 2-209(a)(2) not invoked); *see also Kalata v. Healy*, 312 Ill.App.3d 761, 766, 245 Ill.Dec. 566, 728 N.E.2d 648 (Ill.App.Ct.2000) (ultimate question under 2-209(a)(2) is whether plaintiff alleged defendant committed tortious acts or omissions within Illinois).

Because insurance policies are contracts, this court turns to the considerable guidance given by the Supreme Court with respect to specific jurisdiction in the context of contractual matters. The Supreme Court directs federal courts to adopt a highly realistic approach, instead of a mechanical one, when accessing whether personal jurisdiction exists when a contract is at issue. *See Burger King*, 471 U.S. at 478-79; *see also International Shoe Co.*, 326 U.S. at 319. While a nonresident defendant's contract with a resident defendant does not automatically establish the requisite minimum contacts, "prior negotiations and contemplated future consequences, along with the terms of the contract and the parties' actual course of dealing" often indicate the defendant's "purposeful availment" which makes litigating in the forum state foreseeable to the defendant. *See Burger King*, 471 U.S. at 478-79; *see also Hyatt*, 302 F.3d at 716.

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Richardson, who is the former President of Ness Motley and a current partner of Richardson Patrick, contends that as an officer and shareholder of both law firms his contacts with Illinois must be analyzed independently from the law firms' minimum contacts for purposes of personal jurisdiction. As such, Richardson contends that his only contact with Illinois relating to the present action involves the application for excess professional liability insurance coverage that he signed and mailed to Illinois and that this contact does not establish the sufficient minimum contacts with Illinois.

On the other hand, Old Republic contends that Richardson himself had sufficient minimum contacts with Illinois because he submitted an application for excess professional liability insurance with Old Republic that included material misrepresentations and/or omissions to Old Republic's agent Chicago Underwriting Group, Inc. and did so knowing that the application would be processed in Illinois. Specifically, Old Republic asserts that Richardson signed and dated an application for the first professional liability policy without indicating that Ness Motley was defending the Underlying Action in which the jury ultimately awarded Interclaim \$8.3 million in compensatory damages and \$27.7 million in punitive damages. In addition, Richardson was personally insured under the policies and requested individual coverage from Old Republic via a letter sent to Chicago Underwriting Group, Inc. in Chicago, Illinois.

*6 Despite Richardson's argument that he made just one contact with Illinois, the excess professional liability policies have a substantial connection with Illinois. See *Burger King*, 471 U.S. at 479 (citing *McGee v. International Life Ins. Co.*, 355 U.S. 220, 223, 78 S.Ct. 199, 2 L.Ed.2d 223 (1957)). By signing the application for the excess professional liability insurance, Richardson reached out to Illinois by contracting for insurance via Old Republic's Chicago offices. Looking to the terms of the contracts, Richardson himself was personally insured and requested personal coverage under the excess liability policies. Both policies contemplated future consequences, that is, the possibility that excess professional liability coverage might be needed. Indeed, that is exactly what happened here. Accordingly, Richardson purposefully availed himself to Illinois making litigation in this forum foreseeable. See *Burger King*, 471 U.S. at 478.

Simply put, Richardson's contacts with Illinois are not so random or based on the unilateral activity of another party that he could not have anticipated being haled into this forum. See *id.* at 474-75.

Finally, federal due process requires that the exercise of personal jurisdiction over a nonresident defendant must be reasonable and that exercising jurisdiction does not violate traditional notions of fair play and substantial justice. See *Burger King*, 471 U.S. at 476-78; see also *International Shoe*, 326 U.S. at 316. Factors this court considers when determining the reasonableness of exercising personal jurisdiction over a nonresident defendant include the state's interest in providing a forum to the plaintiff, the burden of defense on the defendant, the burden of prosecution elsewhere on the plaintiff, the extent to which the claim is related to the defendant's local activities, and the avoidance of a multiplicity of suits. See *Asahi Metal Indus. Co. v. Superior Court of California*, 480 U.S. 102, 113, 107 S.Ct. 1026, 94 L.Ed.2d 92 (1987); *Mid-America Tablewares Inc. v. Mogi Trading Co., Ltd.*, 100 F.3d 1353, 1362 (7th Cir.1996).

Applying the *Asahi Metal* reasonableness factors, the court concludes that exercising jurisdiction over Richardson is reasonable and fair. Richardson concedes that Illinois has an interest in this action because Old Republic's principal place of business is in Illinois. Richardson, however, claims that the burden of defending this action in Illinois is excessive because of his limited contacts with Illinois. Richardson's cursory argument is not persuasive especially because the other individual defendants and the law firm will be defending the action in this forum. Finally, dismissing Richardson from this action increases the likelihood of multiple lawsuits arising from the excess professional liability policies at issue. Therefore, it is in the interest of judicial economy that this claim be heard in this forum. See *Asahi Metal*, 480 U.S. at 113; *In re Oil Spill by the Amoco Cadiz*, 699 F.2d 909, 917 (7th Cir.1983). Therefore, the court concludes that its exercise of personal jurisdiction over Richardson is reasonable and fair under the federal due process clause.

V. CONCLUSION

*7 For the foregoing reasons, the defendants' Motion to Transfer Venue [R. 32-1] and

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Richardson's Motion to Dismiss pursuant to Federal Rule of Civil Procedure 12(b)(2) [R. 33-1] are denied. Old Republic's Motion for Leave to File Instantly its Sur-Reply [R. 57-1] is granted.

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Motions, Pleadings and Filings (Back to top)

. 2004 WL 1243920 (Trial Pleading) Defendant Terry Richardson's Answer and Affirmative Defenses to Plaintiff's First Amended Complaint (Apr. 19, 2004)

. 2004 WL 1608152 (Trial Pleading) Defendant Terry Richardson's Answer and Affirmative Defenses to Plaintiff's First Amended Complaint (Apr. 19, 2004)

. 2004 WL 1607753 (Trial Motion, Memorandum and Affidavit) Old Republic's Reply Memorandum of Law in Support of Its Motion to Determine Applicable Law and to Dismiss the Counterclaim of H. Blair Hahn and Michael J. Brickman (Mar. 19, 2004)

. 2004 WL 1607752 (Trial Motion, Memorandum and Affidavit) Reply of Ness, Motley, Loadholt, Richardson & Poole, L.L.C., MRRM, P.A., and Motley Rice, LLC in Support of Motion to Dismiss Plaintiff's Amended Complaint, or in the Alternative, to Stay the Present Action (Mar. 10, 2004)

. 2004 WL 1607751 (Trial Motion, Memorandum and Affidavit) Defendants' Response in Opposition to Plaintiff's Motion to Determine Applicable Law and Dismiss the Counterclaims of Defendants Hahn and Brickman (Mar. 01, 2004)

. 2004 WL 1607748 (Trial Motion, Memorandum and Affidavit) Defendant Terry Richardson's Reply in Further Support of His Motion to Dismiss for Lack of Personal Jurisdiction (Feb. 17, 2004)

. 2004 WL 1607749 (Trial Motion, Memorandum and Affidavit) Defendants Richardson, Patrick, Westbrook & Brickman, L.L.C., H. Blair Hahn and Michael J. Brickman's Reply Memorandum in Further Support of Their Motion to Transfer Venue (Feb. 17, 2004)

. 2004 WL 1607739 (Trial Motion, Memorandum and Affidavit) Old Republic Insurance Company's Response in Opposition to the Motion to Transfer Venue (Jan. 30, 2004)

. 2004 WL 1607742 (Trial Motion, Memorandum and Affidavit) Old Republic Insurance Company's Response in Opposition to Terry E. Richardson's Motion to Dismiss for Lack of Personal Jurisdiction (Jan. 30, 2004)

. 2004 WL 1607745 (Trial Motion, Memorandum and Affidavit) Old Republic's Memorandum of Law in Support of Its Motion to Determine Applicable Law and to Dismiss the Counterclaim of H. Blair Hahn and Michael J. Brickman (Jan. 30, 2004)

. 2004 WL 1607746 (Trial Motion, Memorandum and Affidavit) Old Republic's Motion to Strike the Affirmative Defenses of Richardson, Patrick, Westbrook & Brickman, L.L.C., H. Blair Hahn and Michael J. Brickman (Jan. 30, 2004)

. 2004 WL 1607737 (Trial Motion, Memorandum and Affidavit) Supplemental Memorandum of Law of Ness, Motley, Loadholt, Richardson & Poole, LLC, MRRM, P.A., and Motley Rice, LLC in Support of Motion to Dismiss Plaintiff's Amended Complaint, or, in the Alternative, to Stay the Present Action (Jan. 2004)

. 2003 WL 23666011 (Trial Motion, Memorandum and Affidavit) Defendants, Ness, Motley, Loadholt, Richardson & Poole, LLC, MRRM, P.A., and Motley Rice, LLC's Motion to Dismiss Plaintiff's Amended Complaint, or, in the Alternative, to Stay the Present Action (Dec. 22, 2003)

. 2003 WL 23666752 (Trial Pleading) Defendant Twin City Fire Insurance Company's Answer to Plaintiff's First Amended Complaint for Declaratory Judgment and Related Relief (Dec. 09, 2003)

. 2003 WL 23666748 (Trial Pleading) Defendants Richardson, Patrick, Westbrook & Brickman, L.L.C., Hahn, and Brickman's Answer and Counterclaims to Plaintiff's Amended Complaint (Dec. 08, 2003)

. 2003 WL 23666743 (Trial Pleading) First Amended Complaint for Declaratory Judgment and Related Relief (Nov. 17, 2003)

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. 2003 WL 23666739 (Trial Pleading) Defendant Twin City Fire Insurance Company's Answer to Plaintiff's Complaint for Declaratory Judgment and Related Relief (Oct. 14, 2003)

. 2003 WL 23666005 (Trial Motion, Memorandum and Affidavit) Defendants Richardson, Patrick, Westbrook & Brickman, L.L.C., H. Blair Hahn and Michael J. Brickman's Memorandum in Support of Their Motion to Transfer Venue (Sep. 19, 2003)

. 2003 WL 23667353 (Trial Motion, Memorandum and Affidavit) Defendant Terry Richardson's Motion to Dismiss for Lack of Personal Jurisdiction (Aug. 26, 2003)

. 2003 WL 23668191 (Trial Pleading) Defendants Richardson, Patrick, Westbrook & Brickman, L.L.C., Hahn, and Brickman's Answer to Plaintiff's Complaint (Aug. 21, 2003)

. 2003 WL 22341455 (Trial Pleading) Complaint for Declaratory Judgment and Related Relief (Jul. 28, 2003)

. 1:03CV05238(Docket)
(Jul. 28, 2003)

. 2003 WL 23668186 (Trial Pleading) Complaint for Declaratory Judgment and Related Relief (Jul. 26, 2003)

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**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS**

HARMAN INTERNATIONAL INDUSTRIES,
INCORPORATED,

Plaintiff,

V.

MASSACHUSETTS INSTITUTE OF
TECHNOLOGY,

Defendant.

Case No. 05 C 1481

Judge Holderman
Magistrate Schenkier

**REPLY IN SUPPORT OF DEFENDANT MASSACHUSETTS INSTITUTE OF TECHNOLOGY'S
MOTION TO DISMISS, OR IN THE ALTERNATIVE TRANSFER,
PLAINTIFF HARMAN INTERNATIONAL INDUSTRIES' COMPLAINT**

MIT respectfully submits this Reply in support of its motion to dismiss or transfer Harman's Declaratory Judgment Complaint.

Harman's Opposition brief confirms what MIT only suggested in its motion to dismiss:

1) this case was secretly filed in Chicago as a negotiating tactic within an hour after Harman's representatives shook hands with MIT's representatives in Massachusetts, and promised to respond "within a week or two" to MIT's license offer; and 2) this case has *nothing* to do with Chicago -- except that Harman's counsel is located here.

Nowhere in its opposition does Harman take issue with *any* of the following facts:

1) that *neither* party is a resident of Illinois. MIT is a Massachusetts university, and Harman is a Delaware corporation based in Washington D.C. and California, apparently with no significant contacts in Illinois;

2) that there is *no* discoverable information concerning the issues to be tried (infringement, validity, and enforceability of MIT's patent) in Illinois. Most, if not all, of MIT's evidence will come from Massachusetts (including documentary evidence and

witnesses concerning invention, reduction to practice, prosecution of the patent-in-suit, and MIT's damages). Harman has no evidence or witnesses in this district. According to Harman, they are in Michigan and Europe;

3) that MIT, as a non-profit educational institution, is far less equipped to deal with the fiscal pressures of long-distance litigation than Harman, which is a publicly-traded corporation with over \$2.7 Billion in worldwide sales;

4) that neither MIT, Harman, nor the subject matter of this case have any significant ties to this jurisdiction. Any contacts MIT has in Chicago are *de minimis*. Harman, on the other hand, has property interests in Massachusetts; contracts with Massachusetts entities; is operating currently under a license to unrelated technology owned by MIT; has a wholly-owned subsidiary in Massachusetts; and recognizes revenue from sales of its infringing products to Massachusetts consumers; and

5) that there is currently pending in Massachusetts a properly filed affirmative case of patent infringement, and there is no need for this Court to be involved in Harman's declaratory judgment action. The Massachusetts case will resolve all the issues presented in this case.

Importantly, Harman's opposition brief makes no effort to suggest that this Court is the better forum to resolve this matter. Instead, Harman merely argues that it brought this case in Chicago because it has witnesses in *Michigan*, and that this Court should keep the action in Chicago because this forum is equally *inconvenient* to both parties. Of course, that is not a basis for keeping this case here.

Harman also is unabashedly unapologetic for filing this declaratory judgment complaint in Chicago within minutes of leaving a licensing meeting with MIT, at which both sides shook hands and agreed to continue the discussions "within a week or two." The law in this district, however, is less forgiving and indeed, is clear and unambiguous: "When parties are still engaged in licensing negotiations as of the filing date of an action for declaratory judgment, there *can be no actual controversy*." Livorsi Marine, Inc. v. Nordskog Pub'g, Inc., 268 F. Supp. 2d 994, 998 (N.D. Ill. 2003); see also Phillips Plastics Corp. v. Kato Hatsujou Kabushiki Kaisha, 57 F.3d

1051, 1053-54 (Fed. Cir. 1995). Regardless of what was or was not said by MIT's representatives during *two years* of sporadic licensing discussions about this patent, Harman had no reason to anticipate MIT would sue it when the parties agreed to continue license negotiations a few weeks later. "Threats of litigation within the context of license negotiations ... *do not* create a *reasonable apprehension*." Infosys Inc. v. Billingnetwork.com, Inc., 2003 WL 22012687, at *6 (N.D. Ill. Aug. 27, 2003) (internal citations omitted) (emphasis added) (attached as Ex. C to MIT's Opening Brief).

I. Massachusetts Is The Better Venue In Which To Try This Case.

In this case, the convenience of the parties and witnesses *greatly* favors Massachusetts over Illinois:

1. Neither party is a resident of Illinois. MIT is a resident of Massachusetts. Harman has no apparent contacts in Illinois, being a Delaware corporation headquartered in Washington D.C. with a principal place of business in California.
2. No discoverable information relevant to any issue to be tried (infringement, validity, and enforceability of MIT's patent) is located in Illinois. MIT's evidence is primarily located in Massachusetts, including information bearing on invention, reduction to practice, and prosecution of MIT's patent, and evidence concerning the reasonable royalty to which MIT is entitled. Harman does not suggest there is any relevant evidence in this district, pointing instead to witnesses in Michigan and Europe, and saying it is just as easy for them to get to Chicago as to Boston.
3. *The balance of equities favors Massachusetts.* MIT is a non-profit educational institution, and is far less equipped to deal with the fiscal pressures of long-distance litigation. (See Declaration of MIT's Jack Turner submitted with MIT's Opening brief.) Harman is a publicly-traded corporation with net sales in 2004 of over \$2.7 Billion, and has offered no evidence (by declaration or otherwise), that it would be inconvenienced if this case was transferred to Boston. See Holley Perf. Prods., Inc. v. Barry Grant, Inc., 2004 WL 3119017, at *7 (N.D. Ill. Dec. 20, 2004) (attached as Ex. D to MIT's Opening Brief) (noting that, in considering convenience of the parties, "the court should consider the parties' respective residences and their ability to bear the costs of litigating in a particular forum").
4. *MIT has de minimis contacts to Illinois, but Harman is no stranger to Massachusetts.* Harman has property interests in Massachusetts, contracts with Massachusetts

entities, has been sued in Massachusetts for patent infringement before without disputing the convenience of litigating there, has a wholly-owned subsidiary there, and recognizes revenue from sales of its infringing products to Massachusetts consumers. (See Ex. A attached hereto (Docket Sheet); Ex. B attached to MIT's Opening Brief (Dunn & Bradstreet Report).)

5. *Harman's only links to this forum – the location of its counsel and the residence of the person with whom it began license negotiations – are utterly irrelevant to the venue issue. See Burroughs Corp. v. Newark Elec. Corp., 317 F. Supp. 191, 193 (N.D. Ill. 1970) (“The only apparent convenience to plaintiff arising from suit in this court is the fact that its counsel, and certain pertinent records and documents kept by him, are located in Chicago. Convenience of counsel is irrelevant, however...”).*

It is apparent that transfer would greatly alleviate the inconvenience and expense of trial attendance for defendant's witnesses, and would increase only slightly, if at all, the inconvenience faced by plaintiff's witnesses. This circumstance is entitled to great weight.

Id. at 193-94.¹

Recognizing that it can make no credible argument that Chicago is more convenient than Boston, Harman instead argues that the case should be litigated here because it is equally inconvenient to *both* parties. Of course, this is contrary to the entire goal of the venue statute – to find an appropriately convenient forum in which to litigate a dispute (even if that means the forum is more convenient to one party in the case).

This Court should transfer this case to be consolidated with the affirmative patent infringement action currently pending in Massachusetts.

II. This Case Can Be Dismissed Because It Was Just Plain Wrong Of Harman To Shake Hands And Promise To Respond To MIT's Settlement Offer, But Then File This Lawsuit The Same Day.

Importantly, regardless of whether “there is an actual controversy, the district court is not required to exercise declaratory judgment jurisdiction, but has discretion to decline that

¹ It is also important to keep in mind that here, Harman's choice of forum is *not* entitled to substantial weight as Harman argues – this weight is diminished because Harman filed a *declaratory judgment* action (not an affirmative action), and its choice of forum was *not* its resident state. See Holley Performance, 2004 WL 3119017, at *6.

jurisdiction.” EMC Corp. v. Norand Corp., 89 F.3d 807, 810 (Fed. Cir. 1996). This discretion is often used in cases such as this one, where a party has brought a lawsuit not to vindicate rights, but in the midst of licensing discussions as a way to impose pressure on a less well-funded litigant. Jurisdiction is declined, to make clear that courts will not provide incentives to bring lawsuits while licensing negotiations are ongoing. See id. at 814.

To establish an “actual controversy” in a declaratory judgment patent action, “there must be an explicit threat or action by the patentee which creates a *reasonable apprehension* on the part of the declaratory judgment plaintiff that it will face an infringement suit.” Infosys, 2003 WL 22012687, at *5 (emphasis added). It is undisputed by Harman that, at the close of the March 14, 2005 license negotiation meeting of the parties, they shook hands and agreed to continue discussions, with Harman promising MIT would hear from Harman again within the next few weeks. Because the negotiations were ongoing when Harman filed its complaint, no actual controversy existed to support this Court’s exercise of declaratory judgment jurisdiction.

It is important to remember that the burden here is on Harman to show the existence of an actual controversy. In order for this Court to exercise jurisdiction, litigation must have been “imminent.” As the Federal Circuit has made clear:

[i]n order for this case to be one fit for judicial review, [Harman] must be able to demonstrate that it has a reasonable apprehension of *imminent* suit. ... This requirement of imminence reflects the Article III mandate that the injury in fact be ‘concrete’ and ‘actual or imminent, not conjectural or hypothetical.’

Teva Pharm. USA, Inc. v. Pfizer, Inc., 395 F.3d 1324, 1333 (Fed. Cir. 2005) (internal citations omitted) (emphasis added). Even the case law cited by Harman recognizes that “[t]he case must be of sufficient *immediacy* and reality to warrant declaratory relief.” Genentech, Inc. v. Eli Lilly

& Co., 998 F.2d 931, 936 (Fed. Cir. 1993) (internal citations and quotation marks omitted) (emphasis added).

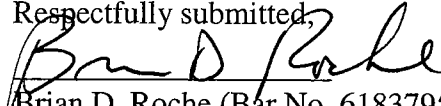
For this Court to exercise jurisdiction, Harman must make a showing that it had a reasonable apprehension of *imminent* suit *at the time it filed its complaint*. See Holley Performance, 2004 WL 3119017, at *4. Clearly, just the opposite is true. Harman guaranteed peace when it led MIT to believe that license negotiations were ongoing. After two years of sporadic negotiations, Harman had no reason to believe that MIT was suddenly planning to change course and bring a suit any time soon.

Harman offers no reason why, on March 14, 2005, having promised MIT it would get back to it with a counter-proposal, it suddenly feared imminent suit by MIT. MIT only filed its suit in Boston after *Harman* sued it here in Chicago.

For these reasons, this Court should dismiss the case, or transfer it to be heard with the affirmative case pending in the District of Massachusetts.

June 24, 2005

Respectfully submitted,


Brian D. Roche (Bar No. 6183795)
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Fax: (617) 529-9899

Attorneys for Massachusetts Institute of Technology

EXHIBIT A

CLOSED

**United States District Court
District of Massachusetts (Boston)
CIVIL DOCKET FOR CASE #: 1:99-cv-10995-DPW**

Massachusetts Instit v. Harman Pro North, et al
Assigned to: Judge Douglas P. Woodlock
Demand: \$0
Cause: 28:1338 Patent Infringement

Date Filed: 05/07/1999
Jury Demand: Defendant
Nature of Suit: 830 Patent
Jurisdiction: Federal Question

Plaintiff

**Massachusetts Institute of
Technology**

represented by **Ira V. Heffan**
Testa, Hurwitz & Thibault, LLP
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V.

Defendant

Harman Pro North America, Inc.

represented by **Allan Litovsky**
Jones, Day, Reavis & Pogue

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LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Defendant

**Harman International Industries,
Inc.**

represented by **Allan Litovsky**
(See above for address)
LEAD ATTORNEY
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Marsha Durko
(See above for address)
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Victor G. Savikas
 (See above for address)
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Counter Claimant

Harman Pro North America, Inc.

represented by **Neil V. McKittrick**
 (See above for address)
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ATTORNEY TO BE NOTICED

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V.

Counter Defendant

Massachusetts Institute of Technology

represented by **Ira V. Heffan**
 (See above for address)
LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Steven M. Bauer
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LEAD ATTORNEY
ATTORNEY TO BE NOTICED

Date Filed	#	Docket Text
05/07/1999	1	Complaint filed. Case assigned to Judge: Woodlock. Receipt #: 14154 Amount:\$ 150.00. Fee Status: Paid (mgl) (Entered: 05/11/1999)
05/10/1999		Summons issued for Harman Pro North, Harman International (mgl) (Entered: 05/11/1999)
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09/20/1999	15	Joint motion by Massachusetts Instit, Harman Pro North, Harman International for Stipulated Protective Order , filed. c/s (mr) (Entered: 09/20/1999)

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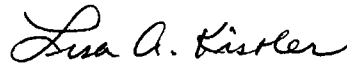
PACER Service Center			
Transaction Receipt			
06/24/2005 07:29:44			
PACER Login:	pr1358	Client Code:	61784-008
Description:	Docket Report	Search Criteria:	1:99-cv-10995-DPW
Billable Pages:	3	Cost:	0.24

CERTIFICATE OF SERVICE

The undersigned attorney certifies that she served a true and correct copy of the foregoing **REPLY IN SUPPORT OF DEFENDANT MASSACHUSETTS INSTITUTE OF TECHNOLOGY'S MOTION TO DISMISS, OR IN THE ALTERNATIVE TRANSFER, PLAINTIFF HARMAN INTERNATIONAL INDUSTRIES' COMPLAINT** on the following counsel of record by email and by First Class U.S. Mail before 4:00 p.m. on June 24, 2005:

William A. Streff, Jr.
Jamal Malik Edwards
Michelle A.H. Francis
KIRKLAND & ELLIS LLP
200 East Randolph Drive, #5800
Chicago, IL 60601

Email: wstreff@kirkland.com
jedwards@kirkland.com
mfrancis@kirkland.com



Lisa A. Kistler

United States District Court, Northern District of Illinois

Name of Assigned Judge or Magistrate Judge	James F. Holderman	Sitting Judge if Other than Assigned Judge	
CASE NUMBER	05 C 1481	DATE	5/17/2005
CASE TITLE	HARMAN INTL INDUSTRIES, INC vs. MASSACHUSETTS INSTITUTE OF TECHNOLOGY		

DOCKET ENTRY TEXT:

Plaintiff's response to defendant's motion to dismiss or in the alternative transfer [9] due 06/10/05;
Defendant's reply due 06/24/05. Court will rule by mail and set any additional dates.

No notices required, advised in open court.

Courtroom Deputy Initials:	mak
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CLOSED

**United States District Court
District of Massachusetts (Boston)
CIVIL DOCKET FOR CASE #: 1:99-cv-10995-DPW**

Massachusetts Instit v. Harman Pro North, et al
Assigned to: Judge Douglas P. Woodlock
Demand: \$0
Cause: 28:1338 Patent Infringement

Date Filed: 05/07/1999
Jury Demand: Defendant
Nature of Suit: 830 Patent
Jurisdiction: Federal Question

Plaintiff

**Massachusetts Institute of
Technology**

represented by **Ira V. Heffan**

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V.

Defendant

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represented by **Allan Litovsky**
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V.

Counter Defendant

Massachusetts Institute of Technology

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Steven M. Bauer
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Report Printed: MAY 05 2005
In Date

BUSINESS SUMMARY

**HARMAN INTERNATIONAL INDUSTRIES
INCORPORATED**
1101 Pennsylvania Ave Nw #1010
Washington, DC 20004

This is a **headquarters** location.
Branch(es) or division(s) exist.

Web site: www.harman.com
Telephone: 202 393-1101
Fax: 202 393-3064
Chief executive: BERNARD A GIROD, CEO-V CHB
Stock symbol: HAR
Year started: 1953
Employs: 10,606 (5 here)
Financial statement date: DEC 31 2004
Sales F: \$2,711,374,000
Net worth F: \$1,081,939,000
History: CLEAR
Financing: SECURED
Financial condition: GOOD
SIC: 3651

Line of business: Mfg audio and video electronic components

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D&B's industry and risk-based limit guidance

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Payment Trends Profile

Payment trends and industry benchmarks

[Learn More](#)

[View Now](#)

D-U-N-S Number: 04-765-3555

D&B Rating: **5A2**

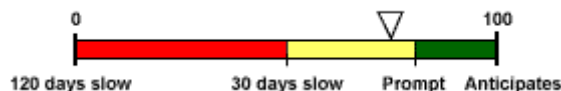
Financial strength: 5A is **\$50 million and over.**

Composite credit appraisal: 2 is **good.**

D&B PAYDEX®:

12-Month D&B PAYDEX: **74**

When weighted by dollar amount, payments to suppliers average 9 days beyond terms.



Based on trade collected over last 12 months.

NEW! [Enhanced payment trends and industry benchmarks are available on this business](#)

SPECIAL EVENTS

04/27/2005

STOCK/BOND ISSUANCE/REDEMPTION/REPURCHASE: According to published reports, Harman International Industries, Incorporated announced that it has declared a cash dividend of \$.0125 cents per share for the third quarter ended March 31, 2005. The quarterly dividend will be paid on May 25, 2005, to each stockholder of record as of the close of business on May 11, 2005.

04/22/2005

EARNINGS UPDATE: According to published reports, comparative operating results for the 9 months ended March 31, 2005: Sales of \$2,222,857,000, Net Income of \$162,613,000; compared to Sales of \$1,979,337,000, Net Income of \$104,914,000 for the comparable period in the prior year.

03/15/2005

STOCK/BOND ISSUANCE/REDEMPTION/REPURCHASE: According to published reports, Harman International Industries Inc, announced that the company has reinitiated purchasing shares under its previously announced share repurchase program. The Board of Directors has authorized the repurchase of up to 16,000,000 shares under this program.

01/28/2005

EARNINGS UPDATE: According to published reports, comparative operating results for the 6 months ended December 31, 2004: Sales of \$1,480,293,000, Net Income of \$99,097,000; compared to Sales of \$1,288,905,000, Net Income of \$61,249,000 for the comparable period in the prior year.

SUMMARY ANALYSIS

D&B Rating: **5A2**
Financial strength: 5A indicates **\$50 million and over.**
Composite credit appraisal: 2 is **good.**

This credit rating was assigned because of D&B's assessment of the company's financial ratios and its cash flow. For more information, see the D&B Rating Key.

Below is an overview of the company's rating history since 01/01/91:

D&B Rating	Date Applied
5A2	03/08/94
5A3	10/23/91
5A2	01/01/91

The Summary Analysis section reflects information in D&B's file as of May 2, 2005.

NEW! Have HARMAN INTERNATIONAL INDUSTRIES INCORPORATED's payment habits changed over time? 

A Payment Trends Profile will show you - [View Now](#)

CUSTOMER SERVICE

If you have questions about this report, please call our Customer Resource Center at 1.800.234.3867 from anywhere within the U.S. If you are outside the U.S. contact your local D&B office.

*** Additional Decision Support Available ***

Additional D&B products, monitoring services and specialized investigations are available to help you evaluate this company or its industry. Call Dun & Bradstreet's Customer Resource Center at 1.800.234.3867 from anywhere within the U.S. or visit our website at www.dnb.com.

HISTORY

The following information was reported **11/15/2004**:

Officer(s): BERNARD A GIROD, CEO-V CHB+
SIDNEY HARMAN, CHB+
GREGORY P STAPLETON, PRES-COO+

FRANK MEREDITH, EXEC VP-CFO-SEC
ERICH GEIGER, CTO

DIRECTOR(S): The officers identified by (+) and Shirley M Hufstedler, Ann McLaughlin Korologos, Edward H Meyer and Stanley A Weiss.

Business started 1953.

This business originally started in 1953 and subsequently incorporated in the state of Delaware in 1980.

BACKGROUND/OWNERSHIP:

This is a publicly traded company. Shares are traded on the New York Stock Exchange under the symbol "HAR". As of August 31, 2004, there are no shareholders holding over 20% of the outstanding stock. The officers and directors as a group beneficially owned 11.4%.

ACQUISITIONS/DISPOSITIONS:

On July 16, 2003, the company acquired Wavemakers Inc, located in Vancouver, British Columbia.

BERNARD A GIROD born 1942. Up to 1986 and for the majority of his career with Permacel, Company. 1986-present active here.

SIDNEY HARMAN born 1918. In 1953, founded Harman-Kardon Inc, which was acquired by subject in 1985. 1977-1980 secretary of commerce for the United States. 1980 to present active here.

GREGORY P STAPLETON born 1947. He has been President of the Company since July 2000, Chief Operating Officer of the Company since 1998 and a director of the Company since 1997. Mr. Stapleton also served as President of the Companys OEM Group from 1987 to 1998. His current term as a director expires at the 2006 Annual Meeting of Stockholders.

FRANK MEREDITH born 1957. Executive Vice President and Chief Financial Officer here, July 2000 - present. Chief Financial Officer of the Company, February 1997 - present. Secretary, November 1998 - present. .

ERICH GEIGER. Antecedents not available.

ANN MCLAUGHLIN KOROLOGOS. She has been a director of the Company since 1995. She served as Secretary of Labor of the United States from 1987 until 1989. Ms. Korologos is a director of AMR Corporation (and its subsidiary, American Airlines, Inc.), Federal National Mortgage Association, Host.

SHIRLEY M HUFSTEDLER. She has been a director of the Company since September 1986. Ms. Hufstedler has been in private law practice for the past 20 years.

EDWARD H MEYER. He has been a director of the Company since 1990. Mr. Meyer has been the Chairman, Chief Executive Officer and President of Grey Global Group, Inc.

STANLEY A WEISS. Stanley A Weiss as been a director of the Company since 1997. From 1991 to 1997, Mr. Weiss served as Chairman of American Premier, Inc.

CORPORATE FAMILY

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Buy Selected Report(s)

Subsidiaries (US):

 Becker of North America Inc	Upper Saddle River, NJ	DUNS # 05-635-0218
 Crown Audio, Inc.	Elkhart, IN	DUNS # 00-507-9884
 Fosgate Inc	Hayward, CA	DUNS # 06-877-8729
 Harman Music Group, Incorporated	Sandy, UT	DUNS # 02-092-4197
 Harman Pro North America, Inc.	Northridge, CA	DUNS # 16-110-2256
 Harman Wisconsin, Inc	Prairie Du Chien, WI	DUNS # 09-019-0849

 Harman-Becker Automotive Systems Inc	Martinsville, IN	DUNS # 01-925-5041
 Harman-Kardon Inc	Northridge, CA	DUNS # 04-142-8970
 Infinity Systems Inc	Woodbury, NY	DUNS # 04-743-4584
 Jbl Incorporated	Northridge, CA	DUNS # 19-627-3874
 Jbl Incorporated	Woodbury, NY	DUNS # 00-837-4605
 Lexicon, Inc	Bedford, MA	DUNS # 05-179-2836
 Madrigal Audio Laboratories, Inc	Bedford, MA	DUNS # 10-896-3075

Subsidiaries (International):

 Becker Holding GmbH	KARLSBAD, GERMANY	DUNS # 34-119-1492
 HARMAN BELGIUM NV	BRUSSEL, BELGIUM	DUNS # 28-288-8668
 Harman Consumer Manufacturing A/S	RINGKOBING, DENMARK	DUNS # 30-541-8980
 HARMAN FRANCE	NOISY LE SEC, FRANCE	DUNS # 26-138-8003
 HARMAN INTERNATIONAL JAPAN CO.,LTD.	TAITO-KU, JAPAN	DUNS # 69-064-9884
 HARMAN U K LTD	Chester, UK (ENGLAND, SCOTLAND, WALES, N.IRELAND)	DUNS # 39-465-0691
 QNX Software Systems Ltd	Kanata, CANADA	DUNS # 24-436-2604
 Studer Professional Audio GmbH	Regensdorf, SWITZERLAND	DUNS # 48-246-5650
 Wavemakers Inc	Vancouver, CANADA	DUNS # 20-071-4124

Branches (US):

 Harman International Industries Incorporated	Phoenix, AZ	DUNS # 03-881-0458
 Harman International Industries Incorporated	Atherton, CA	DUNS # 92-753-6466
 Harman International Industries Incorporated	Chatsworth, CA	DUNS # 82-899-4590
 Harman International Industries Incorporated	Northridge, CA	DUNS # 11-826-0939
 Harman International Industries Incorporated	Northridge, CA	DUNS # 09-952-0467
 Harman International Industries Incorporated	Woodland Hills, CA	DUNS # 87-292-5136
 Harman International Industries Incorporated	New York, NY	DUNS # 09-297-1761
 Harman International Industries Incorporated	Woodbury, NY	DUNS # 08-557-9329
 Harman International Industries Incorporated	Woodbury, NY	DUNS # 13-130-6748
 Harman International Industries Incorporated	Nashville, TN	DUNS # 10-402-1428
 Harman International Industries Incorporated	Nashville, TN	DUNS # 96-553-0157
 Harman International Industries Incorporated	Round Rock, TX	DUNS # 15-317-2650

Buy Selected Report(s)

BUSINESS REGISTRATION

CORPORATE AND BUSINESS REGISTRATIONS PROVIDED BY MANAGEMENT OR OTHER SOURCE

The Corporate Details provided below may have been submitted by the management of the subject business and may not have been verified with the government agency which records such data.

Registered Name: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED

Business type:	CORPORATION	Common stock	
Corporation type:	PROFIT	Authorized shares:	50,000,000
Date incorporated:	JAN 31 1980	Par value:	\$0.0100
State of incorporation:	DELAWARE		
Filing date:	JAN 31 1980		

Where filed: SECRETARY OF STATE/CORPORATIONS DIVISION, DOVER, DE

OPERATIONS

11/15/2004

Description: Harman International Industries Inc designs, manufactures and markets high quality audio and video products for the consumer and professional markets.

Terms are net 30 days (100%). Has 1,850 account(s). Sells to consumer and professional markets.
Territory : Worldwide.

The Company experiences seasonal fluctuations in sales and earnings. The first fiscal quarter is generally the weakest due to automotive model changeovers and the summer holidays in Europe. Variations in seasonal demand among end-user markets may also cause operating results to vary from quarter to quarter.

Employees: 10,606 which includes officer(s). 5 employed here.

Facilities: Leases 10,000 sq. ft. on 10th floor of a 12 story concrete block building.

Location: Central business section on well traveled street.

Branches: This business has multiple branches, detailed branch/division information is available in Dun & Bradstreets linkage or family tree products.

Subsidiaries: This business has multiple subsidiary, detailed subsidiary information is available in Dun & Bradstreets linkage or family tree products.

SIC & NAICS

SIC:

Based on information in our file, D&B has assigned this company an extended 8-digit SIC. D&B's use of 8-digit SICs enables us to be more specific to a company's operations than if we use the standard 4-digit code.

NAICS:

334310 Audio and Video Equipment Manufacturing
334310 Audio and Video Equipment Manufacturing
334310 Audio and Video Equipment Manufacturing
334310 Audio and Video Equipment Manufacturing

The 4-digit SIC numbers link to the description on the Occupational Safety & Health Administration (OSHA) Web site. Links open in a new browser window.

36510000	Household audio and video equipment
36510100	Household audio equipment
36510102	Audio electronic systems
36510200	Household video equipment

D&B PAYDEX

NEW! [Enhanced payment trends and industry benchmarks are available on this business](#)

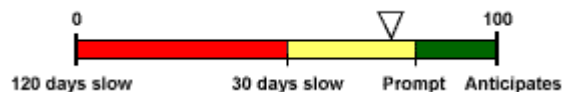
The D&B PAYDEX is a unique, dollar weighted indicator of payment performance based on up to 72 payment experiences as reported to D&B by trade references.

3-Month D&B PAYDEX: **73**

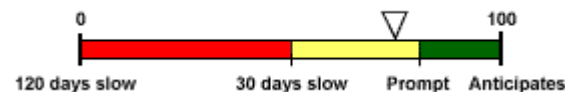
When weighted by dollar amount, payments to suppliers average 11 days beyond terms.

12-Month D&B PAYDEX: **74**

When weighted by dollar amount, payments to suppliers average 9 days beyond terms.



Based on trade collected over last 3 months.



Based on trade collected over last 12 months.

When dollar amounts are not considered, then approximately 81% of the company's payments are within terms.

PAYMENT SUMMARY

The Payment Summary section reflects payment information in D&B's file as of the date of this report.

Below is an overview of the company's dollar-weighted payments, segmented by its suppliers' primary industries:

	Total Rcv'd (#)	Total Dollar Amt (\$)	Largest High Credit (\$)	Within Terms (%)	Days Slow <31 31-60 61-90 90> (%)			
Top industries:								
Telephone communictns	9	124,650	95,000	100	-	-	-	-
Trucking non-local	8	30,000	10,000	98	2	-	-	-
Nonclassified	7	71,350	45,000	100	-	-	-	-
Mfg computers	3	72,500	55,000	62	38	-	-	-
Ret-direct selling	3	17,750	15,000	100	-	-	-	-
Whol electronic parts	2	22,500	20,000	100	-	-	-	-
Short-trm busn credit	2	12,500	10,000	100	-	-	-	-
Help supply service	1	15,000	15,000	50	-	-	50	-
Whol computers/softwr	1	15,000	15,000	-	-	50	-	50
Employment agency	1	15,000	15,000	50	50	-	-	-
OTHER INDUSTRIES	32	55,850	10,000	55	40	4	1	-
Other payment categories:								
Cash experiences	0	0	0					
Payment record unknown	3	800	500					
Unfavorable comments	0	0	0					
Placed for collections:								
With D&B	0	0						
Other	0	N/A						
Total in D&B's file	72	452,900	95,000					

The highest **Now Owes** on file is \$25,000

The highest **Past Due** on file is \$7,500

D&B receives nearly 400 million payment experiences each year. We enter these new and updated experiences into D&B Reports as this information is received.

NEW! How does HARMAN INTERNATIONAL INDUSTRIES INCORPORATED's payment record compare to its industry?

A Payment Trends Profile will show you - [View Now](#)

PAYMENT DETAILS

Detailed payment history

Date Reported (mm/yy)	Paying Record	High Credit (\$)	Now Owes (\$)	Past Due (\$)	Selling Terms	Last Sale Within (months)
04/05	Ppt	5,000	0	0	N30	6-12 mos
	Ppt	1,000	250	0	N30	1 mo
	Ppt	1,000	500			
	Ppt	250	0			2-3 mos
	Ppt	250	0	0	N30	2-3 mos
	Ppt-Slow 30	10,000	0			2-3 mos
	Ppt-Slow 30	250	0			2-3 mos
	Ppt-Slow 90	15,000	0	0		6-12 mos
	Slow 60-120	15,000	2,500	2,500		2-3 mos
03/05	Ppt	95,000	2,500	0		1 mo
	Ppt	25,000	20,000	0		1 mo
	Ppt	15,000	2,500	0	N30	1 mo
	Ppt	10,000	2,500	0		1 mo
	Ppt	10,000	500	0		1 mo
	Ppt	5,000	2,500	0		1 mo
	Ppt	5,000	1,000	0	N15	1 mo
	Ppt	2,500	750	0		1 mo
	Ppt	2,500	0	0		6-12 mos
	Ppt	2,500	0	0	N30	2-3 mos
	Ppt	1,000	750	0		1 mo
	Ppt	1,000	0	0	N30	1 mo
	Ppt	1,000	0	0		6-12 mos
	Ppt	1,000	0	0		4-5 mos
	Ppt	500	0	0		1 mo
	Ppt	500	0	0	N30	6-12 mos
	Ppt	250	0	0	N30	6-12 mos
	Ppt	100	100	0		1 mo
	Ppt	50	50	0		1 mo
	Ppt-Slow 30	55,000	0	0		2-3 mos
	Ppt-Slow 30	15,000	15,000	5,000	N30	1 mo
	Ppt-Slow 30	1,000	250	0	N15	1 mo
	Ppt-Slow 90	250	250	250	N15	6-12 mos
	Slow 5	2,500	2,500	1,000		1 mo
	Slow 5	750	500			1 mo
	Slow 10	2,500	0	0		2-3 mos
	Slow 30	250	0	0		6-12 mos
	Slow 180	50	50	50		
	(038)	500	0	0	N30	2-3 mos
	(039)	250	250	0	N45	
02/05	Ppt	45,000	25,000	0		1 mo
	Ppt	5,000	2,500	0		1 mo
	Ppt	500	250	0		1 mo
	Ppt	500	500	0		1 mo
	Ppt	250	100	0		1 mo
	Ppt	50	0	0		1 mo
	Slow 5-30	250	0	0		4-5 mos
11/04	Slow 5	2,500	0	0		2-3 mos
	(048)	750				1 mo
	Satisfactory.					
10/04	Ppt	15,000	0	0		6-12 mos
	Ppt	2,500	0	0		6-12 mos

	Ppt	2,500	0	0		6-12 mos
	Ppt	1,000	0	0		2-3 mos
	(053)	50	0	0		2-3 mos
09/04	Slow 5-30	7,500	0	0		6-12 mos
08/04	Ppt	2,500	0	0		6-12 mos
06/04	Ppt	10,000	0	0		6-12 mos
	Ppt	7,500	0	0		6-12 mos
	Slow 30	1,000	0	0	N30	6-12 mos
05/04	Ppt	7,500	7,500	7,500	N30	1 mo
	Slow 5	0	0			1 mo
	Slow 5	0	0			1 mo
	Slow 90	500	0	0		6-12 mos
04/04	Ppt	2,500	0	0		6-12 mos
	Ppt	500	0	0	N30	6-12 mos
	Ppt	250	0	0		6-12 mos
	Ppt	50	0	0		6-12 mos
03/04	Ppt	750	0	0		4-5 mos
	Ppt	50	0	0		6-12 mos
02/04	Ppt	250	0	0		6-12 mos
01/04	Ppt	20,000	0	0	N30	6-12 mos
	Ppt	10,000	10,000	0		
	Slow 60	2,500	0	0		1 mo

Payment experiences reflect how bills are met in relation to the terms granted. In some instances payment beyond terms can be the result of disputes over merchandise, skipped invoices etc.

Each experience shown is from a separate supplier. Updated trade experiences replace those previously reported.

NEW! How does HARMAN INTERNATIONAL INDUSTRIES INCORPORATED's payment record compare to its industry?



A Payment Trends Profile will show you - [View Now](#)

STATEMENT UPDATE

02/10/2005

Interim Consolidated statement dated DEC 31 2004:

Assets

Cash	299,938,000
Accts Rec	402,351,000
Inventory	326,331,000
Other Curr Assets	108,467,000

Curr Assets \$1,137,087,000

Fixt & Equip	495,220,000
Goodwill	376,618,000
Other Assets	130,792,000

Total Assets \$2,139,717,000

Liabilities

Accts Pay	170,103,000
Short-Term Borrowings	3,548,000
Accruals	340,540,000
Taxes	128,262,000
L.T. Liab-(1yr)	865,000

Curr Liabs \$643,318,000

Senior Long-Term Debt	335,450,000
L.T. Liab-Other	79,010,000
COMMON STOCK	805,000
ADDIT. PD.-IN CAP	388,545,000
TOTAL ACCUM OTHER COMPREHENSIVE INC	105,037,000
RETAINED EARNINGS	760,034,000
TREASURY STOCK	(172,482,000)

Total \$2,139,717,000

From JUL 01 2004 to DEC 31 2004 sales \$1,480,293,000; cost of goods sold \$980,404,000. Gross profit \$499,889,000; operating expenses \$338,452,000. Operating income \$161,437,000; other expenses \$10,181,000; net income before taxes \$151,256,000; Federal income tax \$52,159,000; net income \$99,097,000.

Statement obtained from Securities And Exchange Commission. Prepared from books without audit.

Accounts receivable shown net less \$8,577,000 allowance.

Explanations

The net worth of this Company includes intangibles.

FINANCE

11/15/2004

Three-year statement comparative:

	Fiscal Consolidated Jun 30 2003	Fiscal Consolidated Jun 30 2004	Interim Consolidated Sep 30 2004
Current Assets	967,624,000	1,204,035,000	1,199,554,000
Current Liabs	487,410,000	662,354,000	660,719,000
Current Ratio	1.99	1.82	1.82
Working Capital	480,214,000	541,681,000	538,835,000
Other Assets	736,034,000	784,775,000	796,276,000
Noncurrent Liabs	560,463,000	451,460,000	405,568,000
Net Worth	655,785,000	874,996,000	929,543,000
Sales	2,228,519,000	2,711,374,000	
Net Income (Loss)	105,428,000	157,883,000	

Interim Consolidated statement dated SEP 30 2004:

Assets

Cash	342,594,000
Accts Rec	427,720,000
Inventory	319,416,000
Other Curr Assets	109,824,000

Curr Assets \$1,199,554,000

Fixt & Equip	451,182,000
Goodwill	254,796,000
Other Assets	90,298,000

Total Assets \$1,995,830,000

Liabilities

Accts Pay	189,270,000
Short Term Borrowings	3,874,000
Accruals	321,624,000
Taxes	142,553,000
L.T. Liab-(1yr)	3,398,000

Curr Liabs \$660,719,000

Senior Long-Term Debt	339,039,000
L.T. Liab-Other	66,529,000
COMMON STOCK	793,000
ADDIT. PD.-IN CAP	363,964,000
TREASURY STOCK	(171,851,000)
RETAINED EARNINGS	695,448,000
ACCUM. OTHER COMP. INCOME	41,189,000

Total \$1,995,830,000

From JUL 01 2004 to SEP 30 2004 sales \$691,706,000; cost of goods sold \$470,307,000. Gross profit \$221,399,000; operating expenses \$159,474,000. Operating income \$61,925,000; other expenses \$6,882,000; Federal income tax \$21,371,000. Net income \$33,672,000.

Prepared from books without audit.

The Net Worth of this company includes intangibles.

The report was updated using information the company filed with the Securities and Exchange Commission.

KEY BUSINESS RATIOS

Statement date: DEC 31 2004
Based on this number of establishments: 18

Firm		Industry Median	
Return of Sales:	6.7	Return of Sales:	1.3
Current Ratio:	1.8	Current Ratio:	2.5
Assets / Sales:	UN	Assets / Sales:	60.1
Total Liability / Net Worth:	UN	Total Liability / Net Worth:	74.7

UN = Unavailable

PUBLIC FILINGS

The following Public Filing data is for information purposes only and is not the official record. Certified copies can only be obtained from the official source.

SUITS

Suit amount: \$0
Status: Dismissal with prejudice
DOCKET NO.: 02CV9380
Plaintiff: PHOENIX SOUND INC DBA SOUND FACTORY
Defendant: HARMON INTERNATIONAL INDUSTRIES INC, NORTHRIDGE, CA
Where filed: U.S. FEDERAL DISTRICT COURT, NEW YORK, NY

Date status attained: 07/10/2003
Date filed: 11/25/2002
Latest Info Received: 08/06/2004

If it is indicated that there are defendants other than the report subject, the lawsuit may be an action to clear title to property and does not necessarily imply a claim for money against the subject.

UCC FILINGS

Collateral: All Assets - Accounts receivable - Products and proceeds - Contract rights - and OTHERS
Type: Original
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2286328
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 10/21/1999
Latest Info Received: 11/22/1999

Type: Amendment
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NA, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2340299
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 08/08/2000
Latest Info Received: 11/08/2000
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Amendment
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 2345110
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 09/06/2000
Latest Info Received: 11/27/2000
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NA, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2354759
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 10/24/2000
Latest Info Received: 01/03/2001
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Amendment
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0300005304633
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 06/06/2003
Latest Info Received: 07/22/2003
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Type: Termination
Sec. party: STATE STREET BANK & TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0400008948409
Filed with: SECRETARY OF STATE/UCC DIVISION, INDIANAPOLIS, IN

Date filed: 09/24/2004
Latest Info Received: 09/30/2004
Original UCC filed date: 10/21/1999
Original filing no.: 2286328

Collateral: All Negotiable instruments and proceeds - All Account(s) and proceeds - All General intangibles(s) and proceeds - All Contract rights and proceeds - and OTHERS

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 01079464
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 04/24/2001
Latest Info Received: 05/07/2001

Collateral: Negotiable instruments and proceeds - Account(s) and proceeds - Computer equipment and proceeds - Communications equipment and proceeds - and OTHERS

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 99659009
Filed with: UCC DIV, SALT LAKE CITY, UT

Date filed: 10/21/1999
Latest Info Received: 12/29/1999

Collateral: Negotiable instruments and proceeds - Account(s) and proceeds - General intangibles(s) and proceeds - Contract rights and proceeds - Computer equipment

and proceeds
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0001956033
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 10/20/1999
Latest Info Received: 12/01/1999

Collateral: Assets - Computer equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002018374
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 08/28/2000
Latest Info Received: 10/12/2000
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Collateral: Equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002020300
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 09/06/2000
Latest Info Received: 10/12/2000
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Collateral: Assets - Computer equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002030191
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 10/24/2000
Latest Info Received: 12/12/2000
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002206585
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 06/04/2003
Latest Info Received: 06/18/2003
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUTNATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002206586
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT
Date filed: 06/04/2003

Latest Info Received: 07/30/2003
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT NATIONAL A, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0002291409
Filed with: UCC COMMERCIAL RECORDING DIVISION, HARTFORD, CT

Date filed: 09/24/2004
Latest Info Received: 11/05/2004
Original UCC filed date: 10/20/1999
Original filing no.: 0001956033

Collateral: All Inventory including proceeds and products - All Account(s) including proceeds and products - All Chattel paper including proceeds and products - All General intangibles(s) including proceeds and products - and OTHERS

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 1064299 6
Filed with: SECRETARY OF STATE/UCC DIVISION, DOVER, DE

Date filed: 07/10/2001
Latest Info Received: 08/07/2001

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 3140263 8
Filed with: SECRETARY OF STATE/UCC DIVISION, DOVER, DE

Date filed: 06/03/2003
Latest Info Received: 06/26/2003
Original UCC filed date: 07/10/2001
Original filing no.: 1064299 6

Collateral: All Account(s) and proceeds - All General intangibles(s) and proceeds - All Contract rights and proceeds - All Equipment and proceeds

Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 99211935
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 10/20/1999
Latest Info Received: 11/08/1999

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 00165871
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 08/24/2000
Latest Info Received: 09/11/2000
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Collateral: Equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED

Filing number: 00171370
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 09/01/2000
Latest Info Received: 09/18/2000
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Collateral: Assets - Computer equipment
Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 00206287
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 10/24/2000
Latest Info Received: 11/13/2000
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0306051118721
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 06/05/2003
Latest Info Received: 06/11/2003
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0306051118745
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 06/05/2003
Latest Info Received: 06/11/2003
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Type: Termination
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 0409240969579
Filed with: SECRETARY OF STATE/UCC DIVISION, ALBANY, NY

Date filed: 09/24/2004
Latest Info Received: 09/29/2004
Original UCC filed date: 10/20/1999
Original filing no.: 99211935

Collateral: Assets including proceeds and products - Account(s) including proceeds and products - Computer equipment including proceeds and products - General intangibles(s) including proceeds and products - and OTHERS
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONALASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 01-713115
Filed with: UCC DIV, SALT LAKE CITY, UT

Date filed: 04/24/2001
Latest Info Received: 05/21/2001

Collateral: Account(s) and proceeds - Leased Assets and proceeds - General intangibles(s) and proceeds - Contract rights and proceeds - and OTHERS
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 2001038492
Filed with: DEPARTMENT OF FINANCE & REVENUE/RECORDER OF DEEDS, WASHINGTON, DC
Date filed: 04/25/2001
Latest Info Received: 08/10/2001

Collateral: Assets and proceeds - Account(s) and proceeds - Computer equipment and proceeds - General intangibles(s) and proceeds - and OTHERS
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 1170617
Filed with: SECRETARY OF STATE UCC DIVISION, PHOENIX, AZ
Date filed: 04/24/2001
Latest Info Received: 08/10/2001

Type: Termination
Sec. party: STATE STREET BANK AND TRUST COMPANY OF CONNECTICUT, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES INCORPORATED
Filing number: 1170617
Filed with: SECRETARY OF STATE UCC DIVISION, PHOENIX, AZ
Date filed: 12/21/2004
Latest Info Received: 02/14/2005
Original UCC filed date: 04/24/2001
Original filing no.: 1170617

Collateral: Account(s) and proceeds - Computer equipment and proceeds - General intangibles(s) and proceeds - Contract rights and proceeds - Equipment and proceeds
Type: Original
Sec. party: STATE STREET BANK AND TRUST COMAPNY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 200101789240
Filed with: SECRETARY OF THE COMMONWEALTH/UCC DIVISION, BOSTON, MA
Date filed: 04/24/2001
Latest Info Received: 07/18/2001

Type: Amendment
Sec. party: STATE STREET BANK AND TRUST COMAPNY OF CONNECTICUT, NATIONAL ASSOCIATION, HARTFORD, CT
Debtor: HARMAN INTERNATIONAL INDUSTRIES, INCORPORATED
Filing number: 200321228660
Filed with: SECRETARY OF THE COMMONWEALTH/UCC DIVISION, BOSTON, MA
Date filed: 06/04/2003
Latest Info Received: 07/07/2003
Original UCC filed date: 04/24/2001
Original filing no.: 200101789240

There are additional UCC's in D&B's file on this company available by contacting 1-800-234-3867.

The public record items contained in this report may have been paid, terminated, vacated or released prior to the date this report was printed.

GOVERNMENT ACTIVITY

Activity summary

Borrower (Dir/Guar):	NO
Administrative debt:	NO
Contractor:	NO
Grantee:	NO
Party excluded from federal program(s):	NO

Possible candidate for socio-economic program consideration

Labor surplus area:	YES (2005)
Small Business:	N/A
8(A) firm:	N/A

The details provided in the Government Activity section are as reported to Dun & Bradstreet by the federal government and other sources.

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and substantial justice." [*International Shoe Co. v. Washington*, 326 U.S. 310, 316, 66 S.Ct. 154, 90 L.Ed. 95 \(1945\)](#). This determination depends on whether the plaintiff asserts general or specific jurisdiction against the defendant. "General jurisdiction ... is for suits neither arising out of nor related to the defendant's contacts, and it is permitted only where the defendant has 'continuous and systematic general business' contact with the forum." [*RAR, Inc. v. Turner Diesel, Ltd.*, 107 F.3d 1272, 1277 \(7th Cir.1997\)](#). Specific jurisdiction, on the other hand, refers to jurisdiction over a defendant in a suit "arising out of or related to the defendant's contacts with the forum." [*Helicopteros Nacionales de Colombia, S.A. v. Hall*, 466 U.S. 408, 414 n. 8, 104 S.Ct. 1868, 80 L.Ed.2d 404 \(1984\)](#).

In the instant case, the Complaint contains no direct allegation that the Court may exercise personal jurisdiction, either general or specific, over BNC as a non-resident defendant. Plaintiff merely refers to venue, stating that "[v]enue is proper in this District pursuant to 28 U.S.C. § 1391(b)(2)." BNC maintains that this Court has neither general nor specific jurisdiction over it. In response, InfoSys argues that BNC has subjected itself to personal jurisdiction of this Court-either general or specific-by virtue of its purposeful and continuous sales efforts in Illinois through its interactive website and national marketing campaigns directed at the healthcare industry.

General Jurisdiction

A website can be a purposeful contact with the forum state for purposes of general jurisdiction. [*Euromarket Designs, Inc.*, 96 F.Supp.2d at 837](#). An exercise of personal jurisdiction is proper where a defendant clearly does business with residents of the forum state over the Internet, *i.e.*, the website is "interactive." [*Zippo Mfg. Co. v. Zippo Dot Com, Inc.*, 952 F.Supp. 1119, 1124 \(W.D.Pa.1997\)](#).

In weighing the issue of personal jurisdiction in the context of the Internet, courts typically use a sliding scale analysis to ascertain what level of Internet interaction subjects a defendant to personal jurisdiction.... The analysis consists of three levels: (1) where the defendant conducts business over the Internet through its active website; (2) where the defendant maintains an interactive website; and (3) where the defendant maintains a passive website.

...

The first category [level 1] consists of situations where a defendant clearly does business over the Internet. If the defendant enters into contracts with residents of a foreign jurisdiction ... over the

Internet, personal jurisdiction is proper.... Websites in this category are interactive and allow for [a] transaction between the user and the website owner.

...

The second category [level 2] is occupied by interactive websites where a user can exchange information with the host computer. In these cases, the exercise of jurisdiction is determined by examining the level of interactivity and commercial nature of the exchange of information that occurs on the website.

*3 ...

The final category [level 3] consists of situations where a defendant has simply posted information on an Internet website which is accessible to users in foreign jurisdictions. A passive website that does little more than make information available to those who are interested in it is not grounds for the exercise of personal jurisdiction.

This Court has addressed this issue in [*Aero Products Int'l, Inc. v. Intex Corp.*, No. 02 C 2590, 2002 WL 31109386, at *5 \(N.D.Ill. Sept.20, 2002\)](#) (internal quotation marks and citations omitted).

Here, InfoSys argues that BNC's website is sufficiently interactive to confer either general or specific jurisdiction. Although the website is clearly not a level 1 website because it does not include an area where potential customers can enter into a contract with BNC over the Internet, it does have a high "level of interactivity" that is of a high "commercial nature." [*Aero Prods. Int'l, Inc.*, 2002 WL 31109386, at *5](#). First, the company's name of "Billingnetwork.com, Inc." indicates that the website plays an integral role in the business and thus has a highly commercial nature. In addition, the website states that personal information from potential clients for BNC's Internet billing system known as "DirectAccess" can be collected from "registration forms, product order information, and other web forms." Furthermore, although "DirectAccess" clients cannot enter into a contract exclusively through the website, the website does profess that one can become a client online and that "all enrollment and training can be accomplished online." Even if this is not the case, however, the process for becoming a "DirectAccess" client can at least be initiated through an exchange of information via the website, and, once under contract, clients may use the website as the primary means for implementing the product and training new users.

In addition to marketing "DirectAccess" for purchase online and initiating client relationships, the website

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solicits non-customers to become "partners" with BNC. The website describes these partnerships as "strategic relationships with other billing centers and companies who operate in the healthcare industry," and the intent for forming them is "to create new opportunities and new customers for BillingNetwork and our partners." Accordingly, these partnerships have a strong commercial nature. Anyone interested in becoming a BNC "partner" may enroll with BNC directly from the Partners page of the website, and thus there is interconnectivity of a commercial nature.

The website also solicits software resellers, medical sales representatives, and practice management consultants to join its "network of qualified Value Added Resellers (VARs)." Anyone interested in doing so is invited to fill out an online form to join. Therefore, we have more interconnectivity of a commercial nature. Finally, there are other interconnectivity features but of a lesser commercial nature; the website offers an opportunity to subscribe to its periodic newsletter, and, on a separate page for investors, the website invites potential investors to fill out a form for more information "about investment opportunities" in the company.

*4 In the end, whether the BNC website is sufficiently interactive to confer general jurisdiction by itself is, to say the least, a close call. On the one hand is a line of cases in which courts found that comparable sites did not confer jurisdiction. [\[FN2\]](#) On the other hand is an equally strong line of cases in which courts found that comparable sites did confer jurisdiction. [\[FN3\]](#) In the final analysis, BNC makes the determinative point when it cites to [Watchworks, Inc. v. Total Time, Inc.](#), No. 01 C 5711, 2002 WL 424631, at *6 (N.D.Ill. Mar.19, 2002) for the observation that cases conferring jurisdiction partly on the basis of Internet activity "reflect that personal jurisdiction is typically determined based not only on the defendant's Internet activities but also on its non-Internet activities." [\[FN4\]](#) In contrast to these situations, the *Watchworks* Court found no jurisdiction because the plaintiff provided evidence only of an employee and its investigator accessing the website and no evidence of other Illinois residents accessing the website or requesting that it be placed on defendant's mailing list. 2002 WL 424631, at *6 [note 8](#). In sum, there is no case where general jurisdiction was conferred on the basis of an interactive website in the absence of non-website factors evidencing intent for a defendant's product or website to reach a particular state.

[FN2. See *Haemoscope Corp. v. Pentaparm AG*, No. 02 C 4261, 2002 WL 31749195 \(N.D.Ill.Dec.9, 2002\)](#) (finding no jurisdiction on the basis of a website that allowed users to request additional product information from the site, but then informed the user that the allegedly infringing device was not yet available in Illinois); [Haggerty Enters., Inc. v. Lipan Indus. Co., Ltd.](#), No. 00 C 766, 2001 WL 968592, at *6 (N.D.Ill. Aug.23, 2001) (finding no jurisdiction on the basis of a website that listed no prices and did not offer direct sales, but did allow the user to contact the defendant through its website to obtain further information); [LaSalle Nat'l Bank v. Vitro, Sociedad Anonima de Capital Variable](#), 85 F.Supp.2d 857, 862 (N.D.Ill.2000) (finding no jurisdiction on the basis of a website that did not allow for direct sales, but did offer users access to on-line catalogs and gave them the ability to interact directly with defendant's customer service representatives).

[FN3. See *Publications Int'l, Ltd. v. Burke/Triolo, Inc.*](#), 121 F.Supp.2d 1178, 1183 (N.D.Ill.2000) (finding jurisdiction on the basis of a hybrid website which it found to be highly commercially interactive because, after requesting a catalog through the website, users received defendant's catalog and could place orders); [LFG, LLC v. Zapata Corp.](#), 78 F.Supp.2d 731 (N.D.Ill.1999) (finding jurisdiction on the basis of an Internet website portal, directing users to other websites through interactive dialogue and through which Illinois users were invited to place themselves on defendant's mailing list); [Maritz, Inc. v. Cybergold, Inc.](#), 947 F.Supp. 1328 (E.D.Mo.1996) (finding jurisdiction on the basis of a website providing information about a forthcoming electronic mailing list service that would forward to users advertisements that matched their selected interests).

[FN4. See *Publications Int'l, Ltd.*](#), 121 F.Supp.2d at 1182-83 (finding that the defendant had extensively distributed the allegedly infringing materials in Illinois); [LFG, LLC](#), 78 F.Supp.2d at 736-37 (not only emphasizing that the defendant's website was actually an Internet portal but also that 25 Illinois residents requested to be

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placed on the defendant's mailing list); [Maritz, Inc., 947 F.Supp. 1328](#) (finding the defendant's website had been accessed at least 311 times in Missouri, the state in which personal jurisdiction was at issue).

Here, assuming *arguendo* that InfoSys can establish the minimal level of interactivity of the BNC website that is sufficient to establish that the website is a hybrid (level 2) website, general jurisdiction does not exist because of the absence of any non-website activities by BNC. InfoSys claims that BNC marketed its website in Illinois and nationwide through its advertisements and listings on several Internet directories that position the website as a source for medical billing solutions, but these Internet advertisements and accompanying Internet-based publicity are insufficient in connection with the hybrid website to establish personal jurisdiction. Generally, national advertisements (including those on the Internet) are insufficient to subject a defendant to jurisdiction in Illinois. [Aero Products Int'l, Inc., 2002 WL 31109386, at *7](#). There must be evidence that the defendant intended its advertisements to reach a particular state. *Id.* Here, InfoSys has cited no evidence indicating that BNC has specifically directed its Internet based advertisements into Illinois or targeted its website at Illinois residents, just as there was no such evidence in *Aero Products Int'l, Inc.* In addition, InfoSys has not offered evidence that BNC had Illinois clients, potential Illinois clients such as in *LFG, LLC*, or even any Illinois visitors to the website as in *Maritz*. All InfoSys has is BNC's alleged national advertising, but "[t]he placement of a product into the stream of commerce, without more, is not an act of the defendant purposefully directed toward the forum State." *Id.* at *6 (quoting [Asahi-Metal Indus. Co. v. Superior Court](#), 480 U.S. 102, 112, 107 S.Ct. 1026, 94 L.Ed.2d 92 (1987)). Accordingly, because of the absence of any non-website factors in conjunction with the arguably hybrid website, general jurisdiction is not appropriate in this case.

Specific Jurisdiction

*5 As mentioned above, specific jurisdiction is appropriate when the plaintiff's claim is related to or arises out of defendant's contacts within the state. [Helicopteros Nacionales de Colombia, S.A., 466 U.S. at 414 n. 8](#). For specific jurisdiction, the Federal Circuit has established a three-prong test that must be satisfied: (1) whether the defendant purposefully directed its activities at the residents of the forum; (2) whether the claim arises out of or is related to those

activities; and (3) whether assertion of personal jurisdiction is reasonable and fair. [HollyAnne Corp. v. TFT, Inc., 199 F.3d 1304, 1307 \(Fed.Cir.1999\)](#). InfoSys asserts specific jurisdiction based on the website, but, once again, there are no allegations, as *Aero Prods. Int'l, Inc.*, that BNC's website was specifically targeted at Illinois residents or that Illinois residents had initiated any actual or potential business relationships with BNC due to visiting the website. [2002 WL 31109386, at *6-7](#). Accordingly, InfoSys cannot satisfy the first prong of the *HollyAnne* test and therefore specific jurisdiction is also not appropriate in this case.

Subject Matter Jurisdiction

Along with the lack of personal jurisdiction, BNC argues that this Court cannot exercise subject matter jurisdiction over this dispute because there is no "actual controversy" as required under the Declaratory Judgment Act, [28 U.S.C. § 2201](#). See [Spectronics Corp. v. H.B. Fuller Co., 940 F.2d 631, 634 \(Fed.Cir.1991\)](#). To establish an "actual controversy" in a patent invalidity declaratory action, (1) there must be an explicit threat or action by the patentee, which creates a reasonable apprehension on the part of the declaratory judgment plaintiff that it will face an infringement suit, and (2) plaintiff must actually have either produced the device or have prepared to produce the device. [Arrowhead Indus. Water, Inc. v. Ecolochem, 846 F.2d 731, 736 \(Fed.Cir.1988\)](#); see also, [Spectronics Corp., 940 F.2d at 632](#). The test for whether a defendant's conduct creates a reasonable apprehension is a "totality of the circumstances" test. [Shell Oil Co. v. Amoco Corp., 970 F.2d 885, 888 \(Fed.Cir.1992\)](#).

Here, the totality of the circumstances does not indicate that BNC's actions constituted a threat of litigation which created a reasonable apprehension of an infringement suit. At the onset, the test for reasonable apprehension is an objective test. [Indium Corp. of America v. Semi-Alloys, Inc., 781 F.2d 879, 883 \(Fed.Cir.1985\)](#). The test therefore requires more than the nervous state of mind of a possible infringer; it requires that the objective circumstances support such an apprehension. [Phillips Plastic Corp. v. Kato Hatsujou Kabushiki Kaisha, 57 F.3d 1051, 1053-54 \(Fed.Cir.1995\)](#). A purely subjective apprehension is insufficient to satisfy the actual controversy requirement. [Indium Corp. of America, 781 F.2d at 883](#). Therefore, the subjective beliefs of InfoSys employees and clients as to whether litigation would be initiated-- and even to what extent they believed this--is entirely irrelevant.

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*6 Regarding BNC's objective conduct, it is black letter law that merely offering a license does not create a reasonable apprehension. Phillips Plastic Corp. v. Kato Hatsujou Kabushiki Kaisha, 57 F.3d 1051, 1053 (Fed.Cir.1995). Threats of litigation within the context of license negotiations also do not create a reasonable apprehension. Shell, 970 F.2d at 887. In *Shell*, the following circumstances occurred:

[b]efore the meeting ended, offers were again made and rejected. Shell indicated that the parties were at an impasse and that litigation appeared likely. Oliver questioned whether Shell could file a declaratory judgment action since Shell was not manufacturing its catalyst. Vance responded that Shell was manufacturing the catalyst and asked, "I assume you will enforce your patent?" A representative of Amoco replied, "Yes," and the meeting ended.

Id. *Shell* held that the patentee's statements that the alleged infringer's activities "fall within," are "covered by," and are "operations under" the patent did not create a reasonable apprehension. *Id.* at 889.

Here, InfoSys's main support for the purported threats of litigation are a couple of letters and some follow-up phone calls. However, the letters include no explicit or implicit threat of litigation and clearly state that there are merely offers to take a license. For example, the March 16, 2003 letter also includes the following language:

We are not charging you with infringement of the patent, but are bringing the patent to your attention so that you may consider licensing the patent to avoid a potential conflict with the patent. We are offering to license the patent on a non-exclusive basis for a modest royalty.

In addition, the follow-up phone calls in reference to the letters do not create a reasonable apprehension because they were made within the context of license negotiations. Shell, 970 F.2d at 887. Accordingly, InfoSys's assertion that BNC has made threats against it is without support in fact or law. BNC has not engaged in any extraordinary or threatening conduct by merely sending letters and/or making telephone calls to InfoSys or its customers in which it used language that was either identical or very similar to the language used in *Shell*. Therefore, subject matter jurisdiction does not exist. [FN5]

[FN5]. Having found that there is no basis for either personal jurisdiction or subject matter jurisdiction, it is unnecessary to consider whether venue is proper.

For the reasons above, BNC's Motion to Dismiss and InfoSys's Motion for Leave to File a Sur-Reply are GRANTED.

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Motions, Pleadings and Filings [\(Back to top\)](#)

- [2003 WL 23798687](#) (Trial Motion, Memorandum and Affidavit) Defendant's Reply to Plaintiff's Response to Defendant's Motion to Dismiss (Aug. 07, 2003)
- [2003 WL 23798674](#) (Trial Motion, Memorandum and Affidavit) Plaintiff's Response to Defendant's Motion to Dismiss (Jul. 24, 2003)
- [2003 WL 23798659](#) (Trial Pleading) Complaint (Jun. 10, 2003)
- [1:03CV03947](#) (Docket) (Jun. 10, 2003)

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